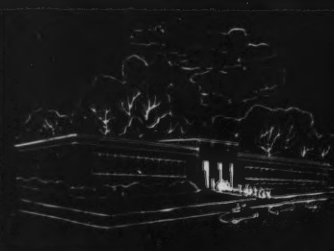


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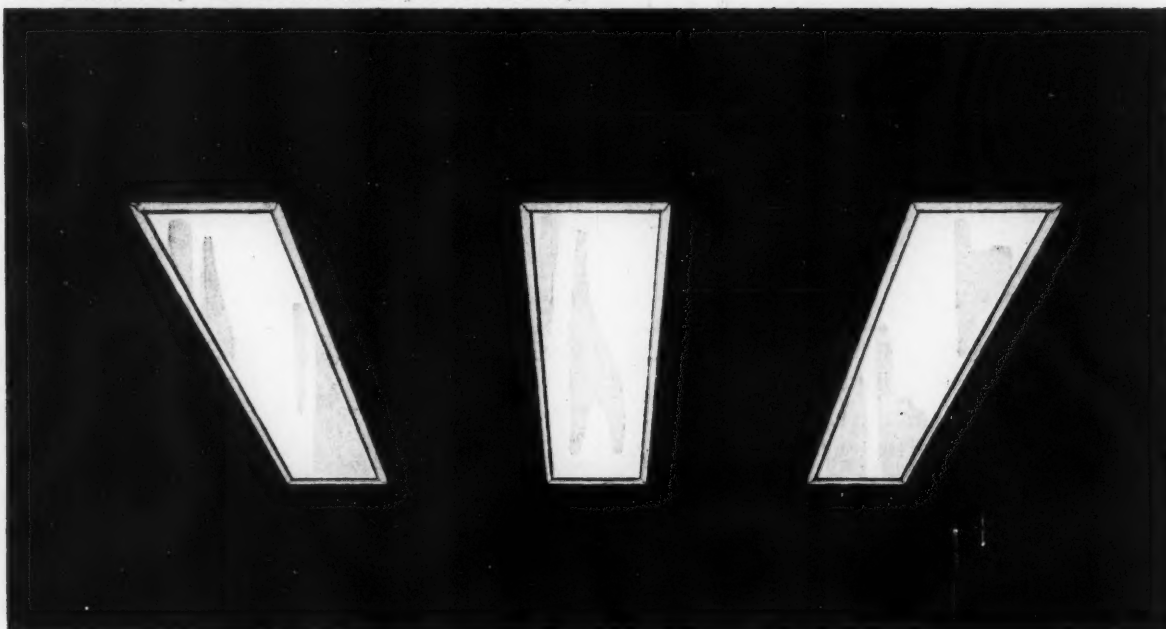
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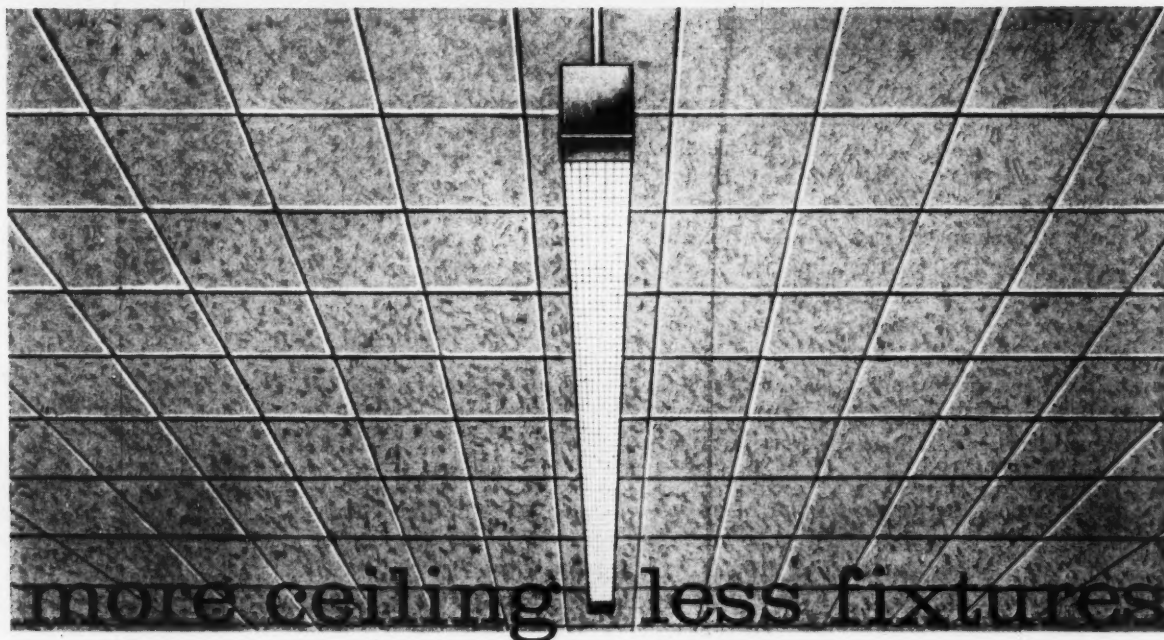
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*A service that features simplicity and reliability  
...assures lower cost per pound of steel*

Prestressed concrete has literally exploded onto the construction scene in the past few years—and has established itself as a vital factor in the building industry.

Setting the pace, Ryerson's complete post-tensioning service brings new and dramatic possibilities to the field of reinforced concrete construction. Offering both lower cost and greater versatility, this service makes prestressing really practical for designers and contractors alike.

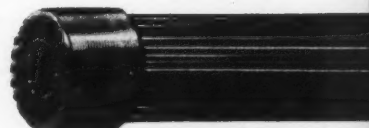
Today Ryerson post-tensioning service, using the time-proved BBRV method, is playing an important role in more and more big construction projects from coast to coast.

This unique Ryerson service covers prestressed concrete application completely, from adaption of the engineers' design through the final stages of field erection. At every step Ryerson experience is available to overcome doubt and unfamiliarity . . . Ryerson materials and equipment are available to make new techniques safe and reliable . . . Ryerson know-how is available to help get the job done. And it's all wrapped up in a complete, single-price, post-tensioning service. See details on the opposite page.

Following are some of the highlights of Ryerson post-tensioning service, showing how it offers new design freedom and economy—saving time and cutting costs. For further information on post-tensioning and the rest of Ryerson's complete service to the construction industry, call your Ryerson representative.

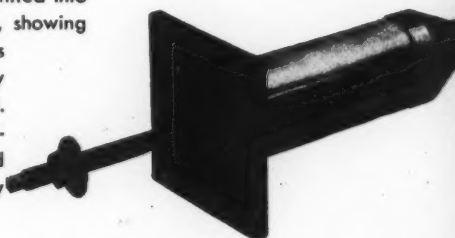
## MOVABLE ANCHOR HEAD

Made of high-grade steel with exterior threads for lock nut and interior threads for pull rod. Steel wires of exact length are inserted through the holes in anchor head and retained by cold formed button heads.



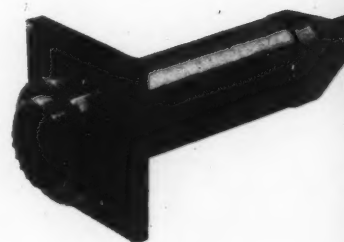
## MOVABLE ANCHOR HEAD ASSEMBLY BEFORE STRESSING

... with wire bundle fitted into trumpet and conduit, showing the device which is used to temporarily hold the anchor head. Threaded bar on holding device can be used to secure the assembly to the formwork.



## MOVABLE ANCHOR HEAD ASSEMBLY AFTER STRESSING

The movable anchor head is positively held in its final position by means of a lock nut screwed against the bearing plate. The center hole, after removal of the pull rod, is used as the grout inlet.



### STRESSING DATA

(according to the Bureau  
of Public Roads)

Number of Wires (diam.)	1— $\frac{1}{4}$ "	12— $\frac{1}{4}$ "	24— $\frac{1}{4}$ "	40— $\frac{1}{4}$ "
Section of Wires (sq. in.)	.04909	0.589	1.178	1.963
Final Force—after losses (lb.)	7,070	85,000	170,000	283,000
Initial Force—before losses (lb.)	8,250	99,000	198,000	330,000
Overstressing Force (lb.)	9,420	113,000	226,000	377,000
Ultimate Force of Tendon (lb.)	11,780	141,380	282,760	471,260



# PRESTRESSED CONCRETE

## COVERS EVERY OPERATION

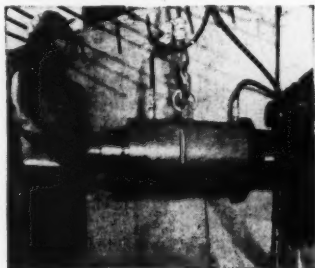
**1. Force development calculations**—from the design engineers' basic data Ryerson furnishes the necessary computation verifying that forces developed by our system meet all requirements of your plans and specifications.

**2. Detailing and placement plans**—Ryerson prepares detailed placing drawings for the tendons, grout connections, grout vent pipes, anchorages, and other components. All units are clearly tagged and identified in accordance with these drawings.



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**5. Field labor procedures**—experienced Ryerson personnel assist in the supervision of every step of the post-tensioning operation, from accurate placement of tendons through precision stressing and anchoring to final positive grouting.

**6. Dependably scheduled deliveries**—Ryerson's nationwide distribution facilities give unequalled convenience and flexibility. Materials and equipment arrive at construction site in accordance with job progress.

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CONTRACTOR—Grant County Constructors

### UNITED AIR LINES EXECUTIVE OFFICE AND

#### TRAINING CENTER, CHICAGO

ARCHITECT—Skidmore, Owings & Merrill  
CONTRACTOR—Gust K. Newberg Construction Co.

### ONEIDA LAKE BRIDGE

BUILDER—State of New York, Dept. of Public Works  
ENGINEER—Summers, Munnings and Molke  
CONTRACTOR—Terry Contracting, Inc.

### CHICAGO EXPOSITION CENTER

BUILDER—City of Chicago  
CHIEF ARCHITECT—Alfred Shaw  
STRUCTURAL ENGINEER—Carl Metz  
CONTRACTOR—Gust K. Newberg Construction Co.

### NAVAL AIR STATION TAXIWAY,

#### LEMOORE, CALIFORNIA

BUILDER AND ENGINEER—U. S. Navy  
CONTRACTOR—Griffith Company

### NORTHWEST EXPRESSWAY OVERPASS, CHICAGO

BUILDER AND ENGINEER—Cook County (Illinois) Highway Dept.  
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BUILDER—New York Life Insurance Co.  
ARCHITECT AND ENGINEER—Skidmore, Owings & Merrill  
CONTRACTOR—Turner Construction Co.

### GEORGE WASHINGTON BRIDGE APPROACHES,

#### NEW YORK CITY

BUILDER AND ENGINEER—Port of New York Authority  
GENERAL CONTRACTORS—Gull Contracting, Inc.; Johnson, Drake & Piper

SUB-CONTRACTOR—Precrete, Inc.

### MISSION VALLEY FREEWAY BRIDGES AND

#### PRESIDIO PARK OVERPASS, SAN DIEGO

BUILDER AND ENGINEER—State of California, Dept. of Public Works, Div. of Highways  
CONTRACTOR—W. F. Maxwell Co.

### SANTA MONICA AND SANTA ANA FREEWAYS

#### INTERCHANGE

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ARCHITECT—Paul Thiry, Seattle

CONTRACTOR—Howard S. Wright Construction Co., Seattle

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#### MITCHELL, INDIANA

ENGINEER AND CONTRACTOR—Fruin-Colnon Contracting Co.

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#### CONTROL PROJECT

BUILDER—City of New York, Dept. of Public Works

ENGINEER—Greeley & Hansen, Chicago

Consultant—Frank Klein, Chicago

CONTRACTOR—Lasker-Goldman Corp., New York City

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## MODERN ARCHITECTURE, MONASTIC

*Breuer's great monastic church for St. John's Abbey, Collegeville, Minn., has now been completed, and a major presentation in the RECORD will provide another opportunity (as with Le Corbusier's La Tourette) to consider modern architecture as the expression of ageless purpose and unchanging character at work in a changing world. The perceptive will find, in this most important unit of Breuer's greatest work, a rare combination of true architectural sophistication and true architectural humility.*

## HOUSES SEEN AS ARCHITECTURE

*Every house is not a home, and every house or home is not architecture, either; but it would be the RECORD's thesis that every house has a better chance of being a home if it is architecture—and that this is a reasonable objective right across the board cost-wise. Next month's 16-page special feature on houses will offer some convincing testimony as to the validity of this thesis in five houses ranging from "minimum" to "maximum." All of the houses have rather spectacular sites, and these were gifts of nature; but their wonderful spaces for living—from the smallest to the largest—are the purposeful creations of their architects.*

## BUILDING TYPES STUDY NO. 300

*The RECORD will present next month its 300th Building Types Study, this one a review of current architectural accomplishment in the field of industrial buildings. Kinds of industrial buildings presented will range from small manufacturing facilities to very large research centers: the coverage based, as always with RECORD Building Types Studies, on the most careful editorial analysis of contemporary practice, problems and trends. Not to mention, of course, access to F. W. Dodge Corporation analyses of prospective activity of the type.*

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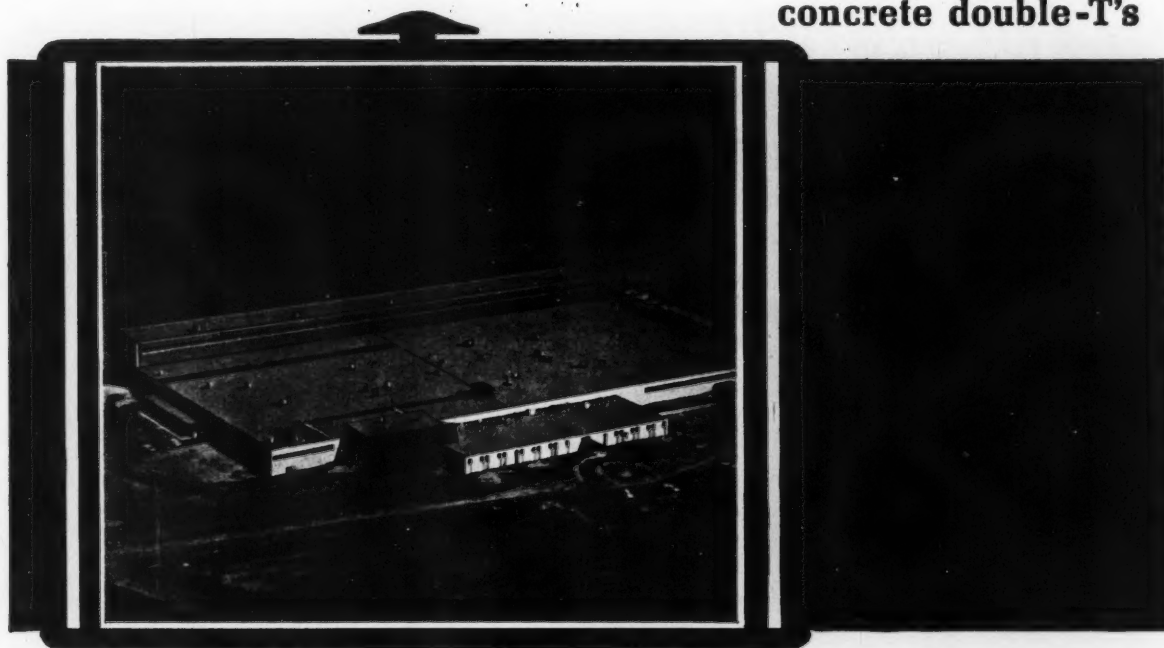


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The pre-cast exposed aggregate panels (Mo-Sai) and grilles were made by Harter Marblecrete Stone Co., Oklahoma City. Black & West, Tulsa, were the architects.

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## Architects as Leaders

"We expect our living standards to rise more or less automatically. But what will not automatically rise is the environment of living." So said Hugh Gaitskell, leader of Britain's Labor party, as quoted by John Crosby in his syndicated column. "This is essentially a matter of planning."

Recent observations in London, Paris and Rome confirm the fact that cities are not improving automatically with the rising standards of living in European countries. They are choked with automobiles and those blasted little scooters to the point where Paris at least is restricting the sale of automobiles to Parisians. No, improvement in the environment of living is not an automatic concomitant of improving material prosperity. Rather the reverse, as for life in cities.

It is, yes, essentially a matter of planning. And for all that we seem always to be talking about planning, the exact status of it at present is woefully backward. Charles Luckman, an architect who has been around a bit, has this to say about planning in California:

"... The Commission (the Governor's Commission on Metropolitan Area Problems) was horrified to learn:

"That such urgent riddles as air pollution, water utilities, and transportation were wholly beyond the jurisdiction of local authorities;

"That no comprehensive metropolitan area plan had ever been generated in this state;

"That not a single identified metropolitan area in this state had an over-all planning function;

"That even if such plans had existed, no authority was available to carry them out."

Luckman's firm is one that has organized to undertake planning assignments, which might help fill this void. He continues:

"In order to develop a total concept, we put together a 22-man team of researchers, analysts, planners, engineers, traffic consultants, and cost estimators. We gathered data in scores of meetings with firms, individuals, agencies, and authorities. We examined and evaluated 400 separate reports. We collated and weighted the opinions of other architects, engineers, contractors, civic experts, and citizens' committees.

"Out of this orderly melee, there evolved a coherent solution—and another proof that the architect has a function as the statesman-like advocate of coordinated planning.

"As another evidence of this changing role of the architect, it will perhaps interest you to know that about five years ago, our work in large-scale planning became 30 per cent of our total fee volume."

The situation seems to be crying for leadership, just such leadership as a well equipped architectural firm could supply. To carry city planning beyond street surveys and mechanical map-making, into something which might impress Mr. Gaitskell as a rise in the environment of living, is a task for architects.

As A.I.A. members know, the encouragement of architects to undertake serious planning and the preparation of members for the job are a current project of the organization. It looks like a clear call for architects to assume their full responsibility for improvement in environmental standards.

—Emerson Goble



# EERO SAARINEN DEAD AT 51; ASSOCIATES PLAN TO CARRY ON

## EERO SAARINEN'S SKYSCRAPER



First tall building and last design of Saarinen: 37-story skyscraper for Columbia Broadcasting System at 53rd Street and Avenue of the Americas in New York: a tower built of granite-clothed triangular concrete piers and rising from a moat.

Eero Saarinen died unexpectedly on September 1 at the age of 51; and thus ended with tragic and stunning abruptness a lifetime of the most intensive and innovative search and research, effort and accomplishment in the cause of architecture.

Mr. Saarinen showed the first symptoms of illness on August 14 and was taken to the University Hospital, Ann Arbor, Mich., August 21. His death followed an operation, a malignant brain tumor the cause.

In the 11 years since the death of his renowned father Eliel, the younger Saarinen had emerged as a commanding figure in this architectural generation's search for form: he had also steadily and inventively explored, in all his executed work, and as perhaps no other architect of his generation, the new architectural possibilities unfolded by contemporary developments in building materials and techniques. The larger problems of city planning and urban design which had so absorbed his father might also have come to be the equal concern of Eero: such later projects as the U. S. Embassy in London, the residential colleges for Yale (now under construction) and some of his other recent work suggest it. And Mr. Saarinen, in an article on campus planning published last November in the *RECORD*, commented that "the primary characteristic of this period seems to be building buildings—buildings thought of as entities in themselves." The architect, he said, "must emerge from his self-made cocoon and expand his vision into the next larger thing. In the process he will gradually formulate strong convictions about outdoor space—the beauty of the space between buildings—and if he does, he will carry his convictions on to his most important challenge—how to build cities. This is the next chapter, the one we have not yet begun to face—esthetically."

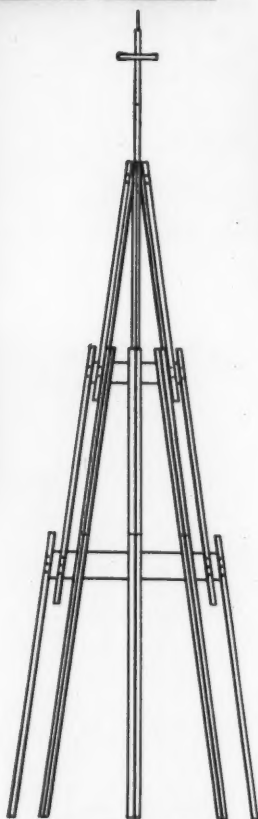
Mr. Saarinen's partners, Joseph N. Lacy and John G. Dinkeloo, have announced that the plans to move the Saarinen office from Bloomfield Hills, Mich., to Hamden, Conn., will be carried out on schedule (about October 15) and that the entire staff is dedicated to completion of Saarinen's work according to his designs. Ten major projects of Saarinen's design are in various stages of construction, working drawings or final design detail.



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## All-bronze spire wins 1961 Achievement Award



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The Copper and Brass Research Association considered this impressive spire the year's most distinctive and ingenious application of copper metals in architecture and building construction.

It was designed by Architect Hugh Moore, Jr., of Easton, Pennsylvania and was erected in that city on St. Michael's Church. The design is a reinterpretation of early Gothic forms which were usually made of wood sheathed in lead. Example: Sainte Chapelle in Paris.

The spire stands 32' high on a 9' diameter base, and weighs about 3 tons. It consists entirely of standard mill sizes of Anaconda architectural metals in angles, sheet, rod and tube, thus avoiding the cost of specially designed shapes.

For complete information on copper metals for architectural and building construction, write Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 61-975

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*Hedrich-Blessing*

Proposed master plan for new Chicago campus of University of Illinois, to be built in three stages, would provide in the first phase a 40-acre core campus (central in photo above and far right across-page) with the most intensively-used facilities (lecture center, library and student union) related to a "Great Court" (closeup at right) which would be both the ceremonial center of the campus and the roof of the lecture center. High-rise structures, including a 28-story staff office and administration building (shown at left on opposite page, with auditorium across plaza), would be placed at periphery and low-rise buildings in center to establish sense of architectural identity both from within and from without campus





## CAMPUS DESIGN BY FUNCTION, NOT BY DISCIPLINE

A new concept in campus design has been developed by Skidmore, Owings & Merrill, architects, in their master plan for a new Chicago campus for the University of Illinois. Buildings are designed to serve a function rather than a discipline, so that classroom buildings, laboratory buildings and high-rise office buildings replace the traditional "biology" or "special science" building which included classrooms, laboratories and offices. Another significant innovation in the scheme is an "express walkway" which will connect most buildings on the campus at the second-story level, either directly or through tributary walkways, thus creating a pedestrian circulation system completely separated from vehicular traffic.

The plan was made public in Chicago last month at a civic luncheon given by the university's Board of Trustees. It was to be presented formally to the trustees later, with approval expected in time for groundbreaking next summer.

The proposed plan would develop a 106-acre site on Chicago's near west side in three phases at an ultimate cost of at least \$150 million—the first phase to be completed by the fall of 1964 for an enrollment of 9000 students, with most advanced undergraduate work restricted to the Col-

leges of Liberal Arts and Sciences, and Commerce and Business Administration; the second phase to be completed by the fall of 1969 for an enrollment of 20,000 students in a full four-year, degree-granting institution; the third phase, scheduled for construction "probably after 1969," to provide auxiliary buildings—graduate, research and service structures, and other facilities.

The site is at Congress Circle, in the section of Chicago's near west side which lies immediately south and west of the Congress Expressway and the South Expressway, now under construction. The educational program now being offered in temporary facilities of the Chicago Undergraduate Division at Navy Pier will be transferred to the new campus and will be the basis for expansion into a full, four-year degree-granting program. Students at the Congress Circle campus will live at home, so housing facilities are not provided.

In the planning of the educational environment, the architects have explained that four basic ideas predominate:

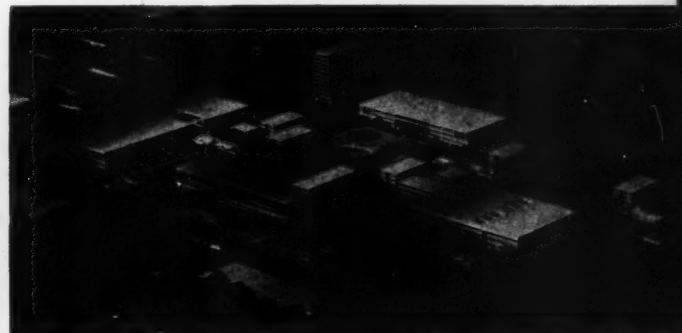
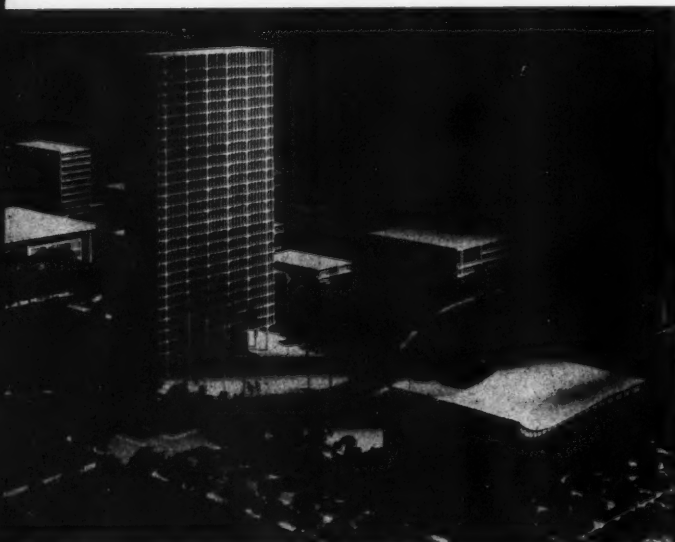
*First, new teaching techniques.*

*Second, flexibility.* Rapid change and growth will require building spaces which permit ready conversion and expansion.

*Third, variety in the environment.*

Each University activity should be in the type of structure which can be utilized most efficiently. Classrooms and laboratories generate mass movements of students in short periods between classes. These can best be housed in three or four-story buildings which do not require passenger elevators. Offices and seminar rooms—generating smaller and more evenly distributed traffic—can best be housed in high-rise buildings. Lecture rooms, the Library and the Student Union require specialized structures.

*Fourth, inter-disciplinary opportunities.* Higher education is moving toward closer inter-relationships among the academic fields of study. To meet this development, a building should be designed to serve a function rather than a discipline. Classrooms and laboratories should be interchangeable and usable for various kinds of courses, both for economy and for inter-disciplinary contact. . . . The need for additional utilities can be met by a common service core for all floors—again important and economical. Planning classrooms and laboratories in separate buildings achieves another economy because ceiling heights are nine ft for classrooms and twelve ft for laboratories.



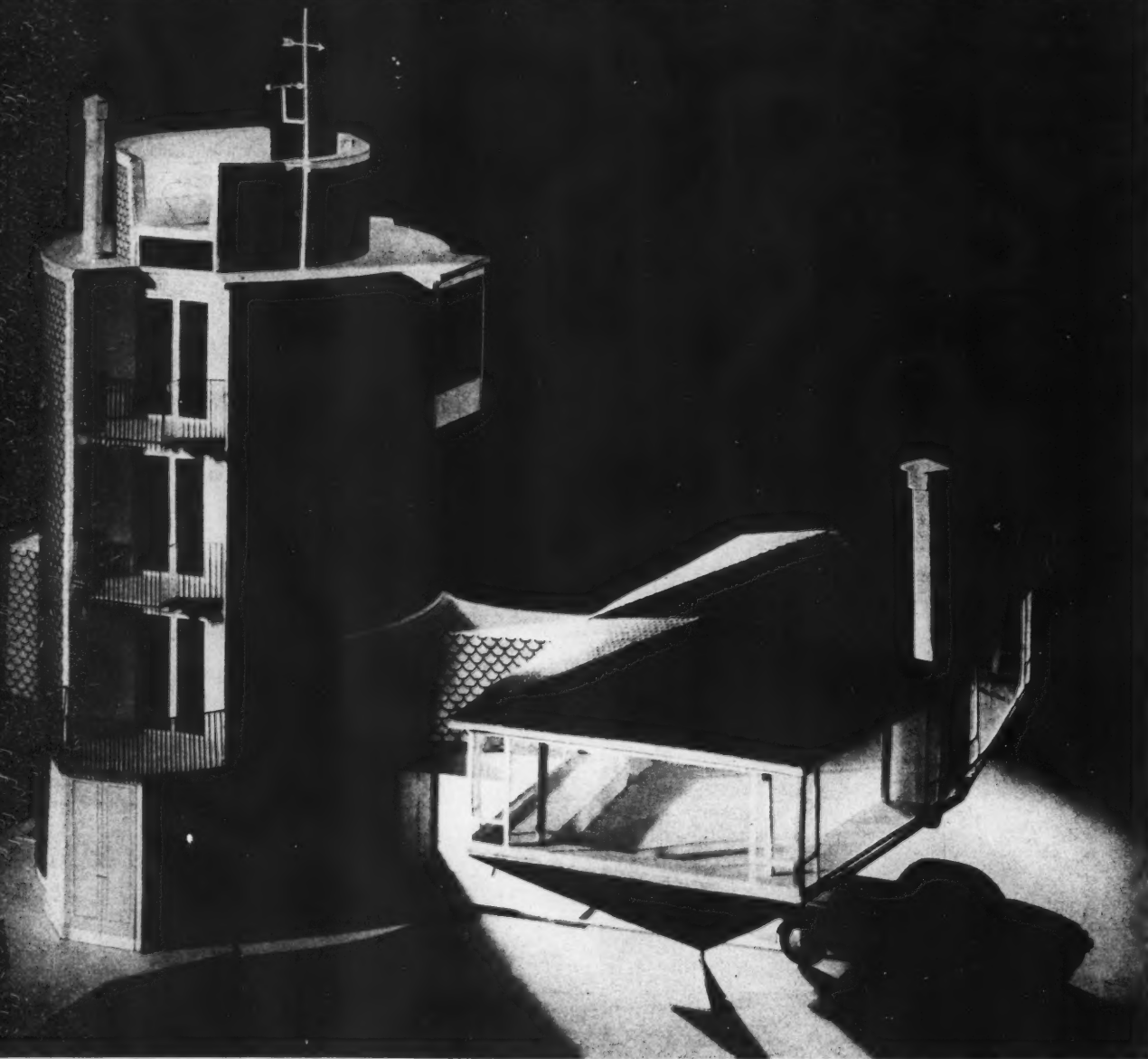


DESIGN  
FOR A CASTLE  
WHICH MIGHT HAVE BEEN

ONCE upon a time an architect named Harry Weese designed a Swiss chalet for a Rocky Mountain setting. Consisting of a fairy-tale bedroom tower and a glass pavilion living room, the three-bedroom summer and winter vacation house was to be a speculative or non-speculative residence.

The house was so arranged that three separate and private suites with bedroom and bath could be rented independently when the owner was not there. During rental season, living-dining areas could be shared.

When the owner lived in the house, he and his family could enjoy maximum privacy. The separa-



Hubert Henry, Hubert-Henry



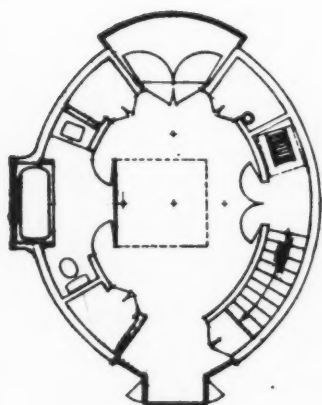
tion of the bedrooms contrasted with the extroverted living room which looked out onto mountain views.

The bedroom tower was reached from a stairway running between curved walls from floor to floor. On the ground floor was the dining area and a service kitchen whose built-in units were concealed by a folding screen. This room was convertible to another bedroom on occasions. Each of the three bedrooms in the tower had its own balcony.

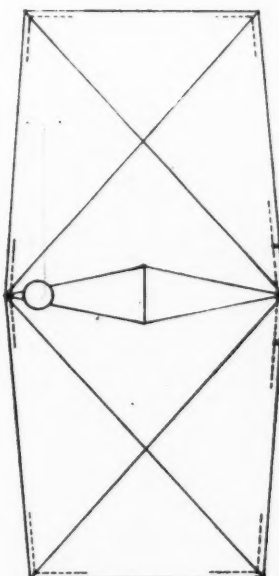
The living room had a large fireplace; foam rubber pads on the window seats which made up into four to eight sleeping accommodations for young people.

As the architect himself said of his house, "Designed for conventional construction, if somewhat unconventionally arranged, and easy maintenance; for example, the exterior of unpainted shingles. Exterior doors are flush white pine; casement sash is steel. Heating is by baseboard convection system. Bathrooms are tiled, with built-in cabinets and shelving under lavatories. Storage located by the ground floor side entry is intended for ski equipment."

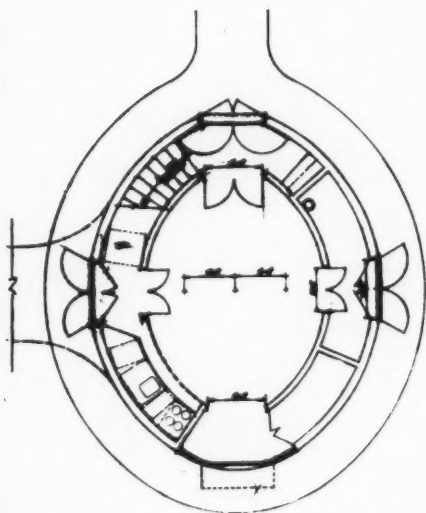
The house was one of 12 commissioned by the late Walter Paepcke to be designed for Aspen. And then the client died, and the house was never built.



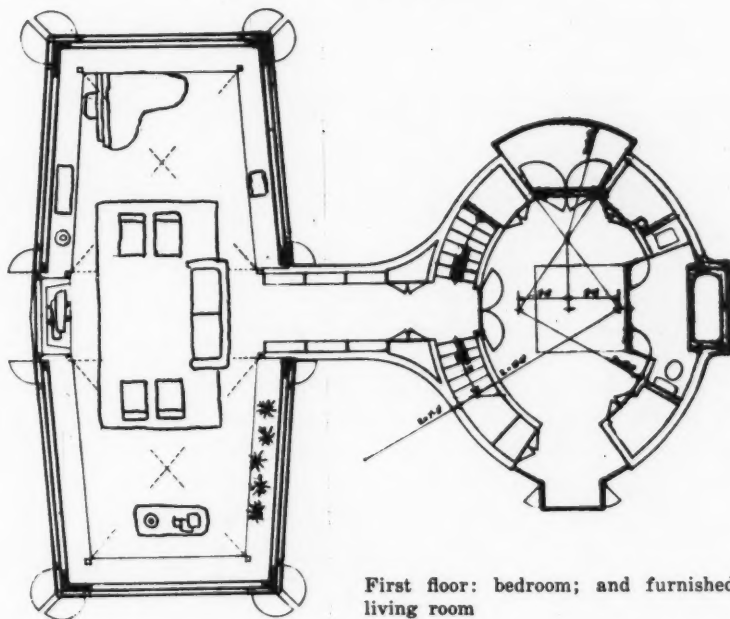
Third floor: bedroom



Second floor: bedroom; and roof of living room



Ground floor: dining area and service kitchen



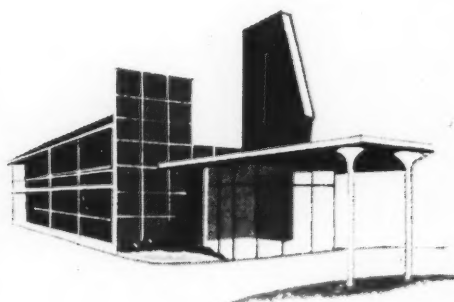
First floor: bedroom; and furnished living room



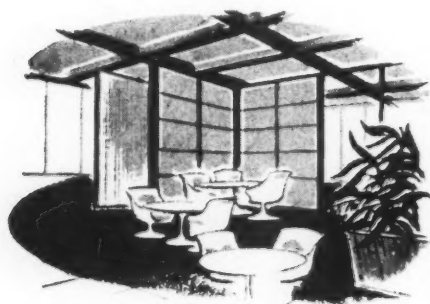
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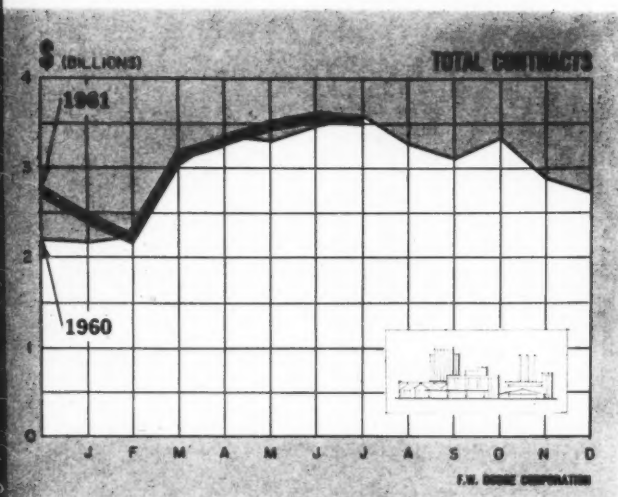


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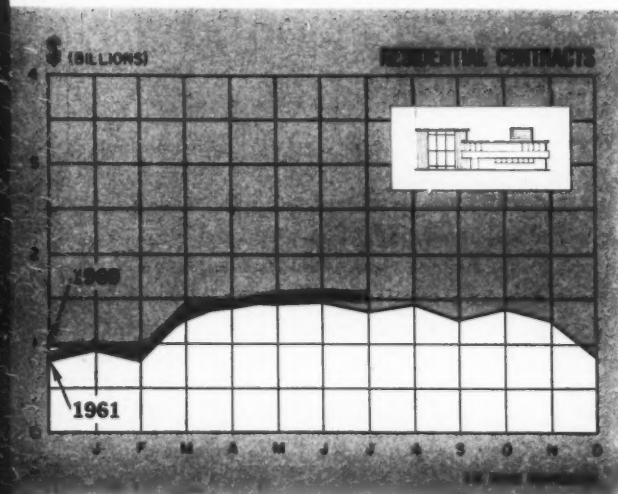
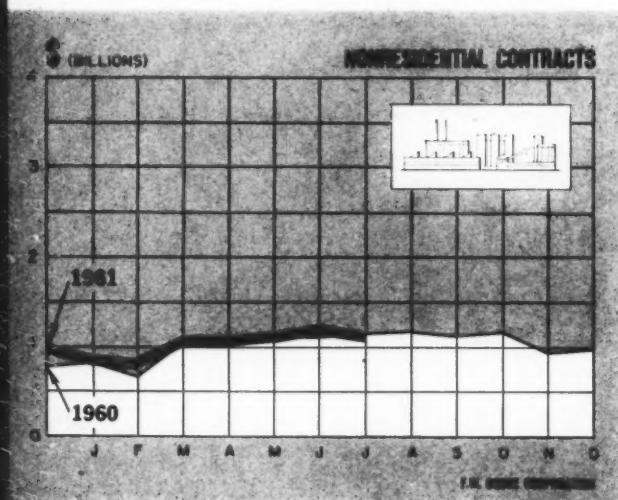
J-98800AA



# Current Trends in Construction



Total contracts include residential, nonresidential, heavy engineering contracts



## BUILDING FOR LEARNING

"INVESTMENT IN HUMAN CAPITAL" was a phrase bandied around Washington this spring mostly by supporters of legislation to increase Federal-aid to education. It was intended, of course, to serve as a substitute for less noble sounding terms such as "Government spending." But despite its political implications, "investment in human capital" is a most appropriate expression to highlight the financing of our school systems. One of the surest ways to ensure the future of this country, or at least a future worth looking forward to, is to make sufficient current investment in the process whereby the quality of human capital is improved. Many, if not most, of our communities are taking the necessary steps. The lure of substantial Federal subsidies for local school districts (which has been put off probably for two years at least) has not deterred them from making their own efforts to upgrade the school systems.

IN RECENT YEARS, public school teachers' salaries have risen notably faster than average money income from all occupations. School construction, the area of particular interest to us, has proceeded to a record pace for the last year and a half. Contract awards for educational and science buildings amounted to some \$3 billion in 1960, 13 per cent above 1959 and easily an all-time high for any year. For the first seven months of 1961, school awards ran 6 per cent ahead of the same period last year. As a whole 1961 will undoubtedly set a new record for dollar valuation of school contracts. As we predicted last fall, total square footage involved in school contracts probably will range close to the 1960 level.

SCHOOL BUILDING now accounts for 26 per cent of the non-residential building market, and is outranked in size only by the giant commercial building category. We anticipate a very strong growth trend in school building during the decade of the Sixties. In particular, there will be much more emphasis on construction of secondary school and college facilities for reasons that have been documented in this column before. But elementary school construction will still be the largest part of the school building market. Enrollments at this level are expected to rise between 12 and 18 per cent by 1970—a slower rate than experienced during the 1950's. Because we are over the hump for a while in enrollment increases this does *not* mean an equivalent slowdown in elementary school building. Some fast growing areas around metropolitan centers will require more new school construction than ever before. The next five or six years will offer a good opportunity to eliminate what is left of the backlog of classroom need. Furthermore, increased emphasis on supporting facilities and on more classroom space per pupil should mean larger schools for the same enrollment. To allow use of audio-visual aids and other new teaching methods in elementary schools, the National Education Association claims that classrooms (for a maximum of 30 students) should have approximately 1400 sq ft of usable space. In the past, according to the NEA, from 700 to 900 sq ft were adequate for simple recitation and lecture instruction.

EDWARD A. SPRAGUE, Associate Economist  
F. W. Dodge Corporation  
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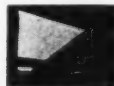


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# Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100

## NEW YORK

## ATLANTA

PERIOD	RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
1959	342.7	329.0	367.7	386.8	374.1	252.2	247.7	266.1	272.7	273.1
1960	351.6	337.2	377.7	395.8	380.6	259.2	253.3	274.7	282.5	278.8
May 1961	362.3	342.1	396.8	422.0	396.4	256.2	249.1	275.3	284.2	274.9
June 1961	365.5	345.5	402.6	427.3	400.7	254.8	247.3	275.0	284.0	274.5
July 1961	367.3	346.6	405.4	431.3	403.9	254.8	247.3	275.0	284.0	274.5
% increase over 1939										
July 1961	197.4	183.2	210.2	223.3	210.4	195.2	197.6	189.2	191.6	189.9

## ST. LOUIS

## SAN FRANCISCO

1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9	100.4
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7	99.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9	116.5
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8	216.1
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5	222.6
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7	249.6
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0	259.7
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5	267.2
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4	279.4
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6	295.8
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2	310.7
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7	320.8
1959	305.4	296.4	315.0	329.8	323.9	299.2	284.4	322.7	338.1	330.1
1960	311.4	301.0	322.2	337.2	329.2	305.5	288.9	335.3	352.2	342.3
May 1961	316.1	302.9	329.1	347.6	332.1	310.7	290.7	347.1	367.4	353.7
June 1961	316.7	303.5	329.9	348.2	332.7	310.8	292.4	346.9	364.8	352.1
July 1961	317.0	303.8	330.2	348.2	332.7	311.8	293.8	347.4	364.6	351.2
% increase over 1939										
July 1961	187.6	183.9	178.2	190.6	179.6	195.3	195.9	195.9	199.1	201.4

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

$$\frac{\text{index for city A} - \text{index for city B}}{\text{index for city B}} = 0.158$$

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{\text{index for city A} - \text{index for city B}}{\text{index for city A}} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.



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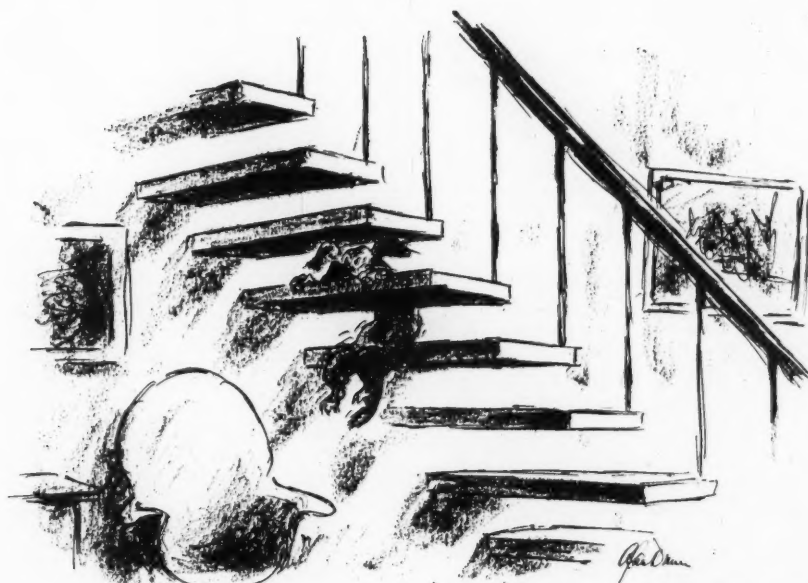


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## Meetings and Miscellany



—drawn for the RECORD by Alan Dunn

SC Photo



**Hurst  
Named Dean at  
University of  
Southern Calif.**

Samuel T. Hurst, dean of the School of Architecture and Arts at Auburn University, Alabama since 1957, has been appointed dean of the School of Architecture at the University of Southern California.

Dean Hurst's resignation at Auburn was announced by President Ralph B. Draughon and Dr. M. C. Huntley, dean of faculties, who said, "We congratulate him upon the promotion and U.S.C. upon obtaining the services of such an excellent educator."

The new U.S.C. dean assumed his new position in Los Angeles in September. Professor Henry Charles Burge has been acting dean of the U.S.C. School of Architecture the past year since Arthur B. Gallion resigned after 15 years to become director of planning for Harland Bartholomew and Associates in Honolulu.

A graduate of Harvard University

where he received his master's degree in architecture in 1949 and of Georgia Tech where he earned his bachelor of architecture degree in 1942, Dean Hurst recently received a new four-year appointment to the National Architectural Accrediting Board.

In his position as dean of the School of Architecture and the Arts at Auburn, he has also been responsible for the department of art, building technology, dramatic arts and music. Dean Hurst has been a speaker at many architectural conferences across the nation and has lectured on architecture, art and education at Notre Dame, Georgia Tech, Union Theological Seminary in Richmond and the University of Arkansas.



**Gropius  
Receives  
Highest  
German Prize**

At a ceremony held in the Pauls Kirche on August 28, the birthday of Goethe, Dr. Walter Gropius of

Lincoln, Mass. received the "Frankfurter Goethe Preis" for 1961 (\$13,000). The citation declares that "Gropius, by means of his buildings, his writings, and his educational activities, has given direction to the architecture of the industrial age and influenced its development."

This is the first time the prize has been given to an architect. Former recipients of the Goethe Preis, which is given every third year, include Sigmund Freud, Albert Schweitzer, Gerhard Hauptmann, Max Plauck, Carl Zuckmayer and Thomas Mann.

### **Architectural Innovators Share Norton Professorship**

For the first year the Charles Eliot Norton Professorship, which honors Harvard's great teacher of fine arts, will be shared. Newly appointed Norton Professors for the Harvard academic year 1961-62 are Felix Candela of Mexico, R. Buckminster Fuller of the United States and Pier Luigi Nervi of Italy.

Professor Candela will lecture from the middle of November to Christmas, 1961; Mr. Fuller from the beginning of February to the middle of March, 1962; and Professor Nervi, from the beginning of April to the middle of May.

*continued on page 24*



## Meetings and Miscellany

continued from page 23

### Second Reynolds Student Competition Invites Entries

For the second year the Reynolds Aluminum Prize for Architectural Students is being offered in recognition of design achievement, "the best original design for a building component in aluminum", at two separate levels: the individual school prize and the national prize.

Subjects chosen for design work can range from a single element to a complete architectural entity. Eligible to enter are students who have previously completed a minimum of two years of an architectural design curriculum at any school in the United States which is a member or associate member of the American Association of Collegiate Schools of Architecture or which has a student chapter, American Institute of Architects.

Each participating school will submit its winning design to the A.I.A., administrator for the Reynolds Prize, for consideration for the national prize. From these entries a jury of distinguished architects appointed by the A.I.A. will select one for the national prize, which carries an award of \$5000—\$2500 for the student or group of students originating the design and \$2500 for the winner's school. A \$200 school prize will be given to the winner in each of the participating schools.

Deans or department heads from schools wishing to participate should notify the A.I.A. by letter. For information write the A.I.A., Attn: Reynolds Aluminum Prize, 1735 New York Ave., N.W., Washington 6, D.C.

It is suggested that student designs be prepared for judging by individual schools no later than Dec. 18 to provide time for school judging and shipment of the selected entry to the A.I.A. in time for review by the National Prize jury. Each winner of the school prize submitted in the national competition must be received no later than Jan. 9.

### A.I.A. National Honor Awards Program Announced

To encourage excellence in architecture, the American Institute of Architects announces its 14th Annual Program of National Honor Awards

for current work. Eligible are buildings designed by registered architects practicing professionally in the United States, having been erected anywhere in this country or abroad and completed after Jan. 1, 1957.

A jury of five architects (one, an architectural educator) appointed by the Board of Directors of the A.I.A. will make one or more First Honor Awards for Distinguished Accomplishment in Architecture and as many Awards of Merit as it finds entries deserving.

Entries will be judged, not in competition with other entries, but on the basis of the architect's solution of the problem presented him and its worthiness for an award of excellence in architecture.

Entry slips must be received prior to Nov. 28. For further information write: 1962 Honor Awards Program, A.I.A., 1735 New York Ave., N.W., Washington 6, D.C.

### Frank Lloyd Wright in Posthumous Recording

"Frank Lloyd Wright on Record" is the title of a long-playing record being issued this fall by Caedmon Records, Inc. In a one-hour conversation the late Mr. Wright speaks in typically candid style, answers questions posed by his publisher and by Caedmon.

Made from a master tape done in 1955, the recording, says Harold Drayson, national sales director for the spoken-word label, has been "most eagerly awaited. . . . We have had orders, re-orders and back orders, since it was first announced awhile ago. However, editing problems prevented its issuance until now."

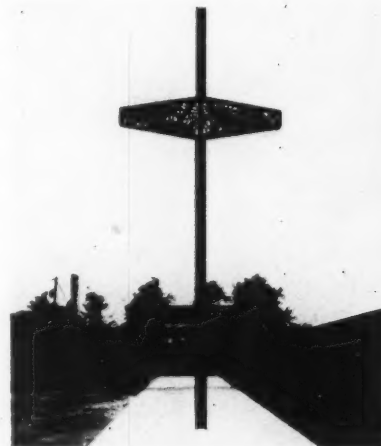
### Kaufmann International Award Jury Members Announced

The Jury of the Kaufmann International Design Award, which met in Zurich in September to select the winner of the 1961 Award, consists of the following members: Franco Albini, professor at the University Institute of Architecture in Venice, Italy; Jay Doblin, director of the Institute of Design, Illinois Institute of Technology, United States; Kaj Franck, director of the design

department of the Waertsila-Arabia Potteries and the Waertsila-Notsjoe Glassworks, Finland; Prince Ludwig Von Hessen, founder and chairman of the Institut fuer Neue Technische Form at Darmstadt, Germany; and Iwataro Koike, associate professor at the Tokyo University for the Arts, Japan.

The announcement of the Jury's choice will be made in November.

### Glass Cross Identifies Minnesota Church



This free-standing cross of colored glass identifies Transfiguration Lutheran Church in Bloomington, Minn. Capturing light and glowing with it, the 31-ft high and 12-ft wide cross serves as the visual expression of the name of the church.

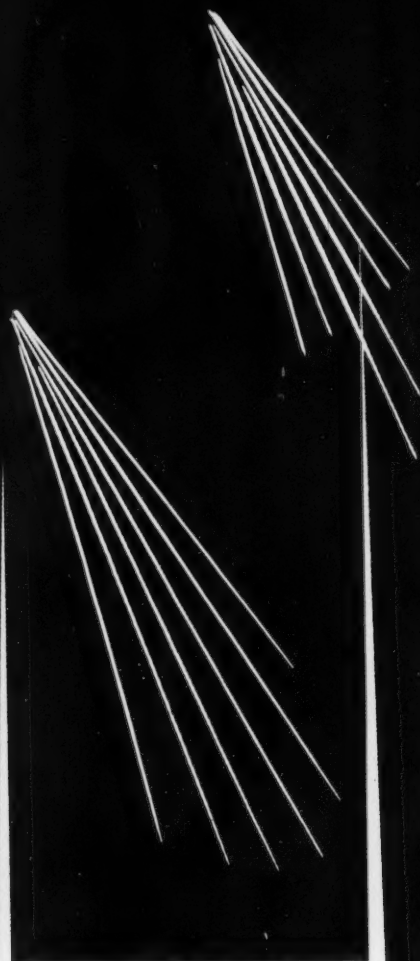
Across the horizontal bar there are eight sections of colored glass. Within the metal framework are several hundred pieces of glass in approximately 40 shades. Colors begin with dark shades at the outer ends and fade to clear white in the center. The artist, August Molder, has woven into the glass work symbols of transfiguration: the Iota and the Chi, the first letters of Jesus and Christ in Greek; three shells for James; a serpent in a chalice for John; and crossed keys for Peter.

The entire cross weighs nearly 300 pounds. Its base is sunk in three yards of concrete.

Grant Gilderhus, of Sacred Design Associates, Inc., Minneapolis, Minn., contributed the concept of the glass cross. Structural engineering and working drawings were done by Adkins and Johnson.

more news on page 88





*A special report on*  
**ARMSTRONG  
VENTILATING  
CEILINGS**

*A remarkable new  
plenum-engineered  
ventilating system*



## **ARMSTRONG VENTILATING CEILINGS**



*their advantages*

### **1. A completely proven ceiling ventilating system**

Over the past 20 years, Armstrong has developed a ceiling ventilating system employing a plenum chamber, which is built into the ceiling, with its own ductwork and diffusers. This system has been proven by its use in a wide variety of buildings, from small homes to large hotels. The engineering backing for this new kind of ventilating system has been fully developed for virtually all types of structures. Ventilating Ceilings have been used by a number of architects in a variety of different jobs. One of them — the Battle Creek Country Club — is shown at right. Some other recent jobs are listed on the last page of this report.

### **2. Shaves construction costs, cuts ductwork, eliminates diffusers**

An Armstrong Ventilating Ceiling performs three essential functions: air diffusion, sound absorption, decoration. And when you use Armstrong Fire Guard in a Ventilating Ceiling, you can add a fourth function: time-design-rated fire protection. Since the plenum chamber acts as the room duct in an Armstrong Ventilating Ceiling, and since one duct stub is sufficient for most plenum chambers, much of the supply ductwork is eliminated. So are the diffusers, because the ceiling itself serves as the diffuser. In both new construction and remodeling, these two things alone offer appreciable cost savings. An Armstrong Ventilating Ceiling often permits the use of a shallower plenum than the conventional air-inlet system. This, too, saves money, by enabling you to have the required number of floors with less total building height.

### **3. Provides a handsome acoustical ceiling**

Because an Armstrong Ventilating Ceiling eliminates the need for diffusers — or other noticeable air openings — it provides new opportunities for creative effects. In the Battle Creek Country Club, shown at right, the architects have created distinctive character with a giant-coffered ceiling, incorporating Ventilating Tile. In each tile, the tiny ventilating perforations account for two per cent of the surface. And they're virtually invisible, because they're part of the over-all pattern. Ventilating Ceilings are available in a number of different designs, in both tile and lay-in units, so you can select the one that best meets your aesthetic needs.

Renderings by Ara Derderian







## **ARMSTRONG VENTILATING CEILINGS**

*their functions*

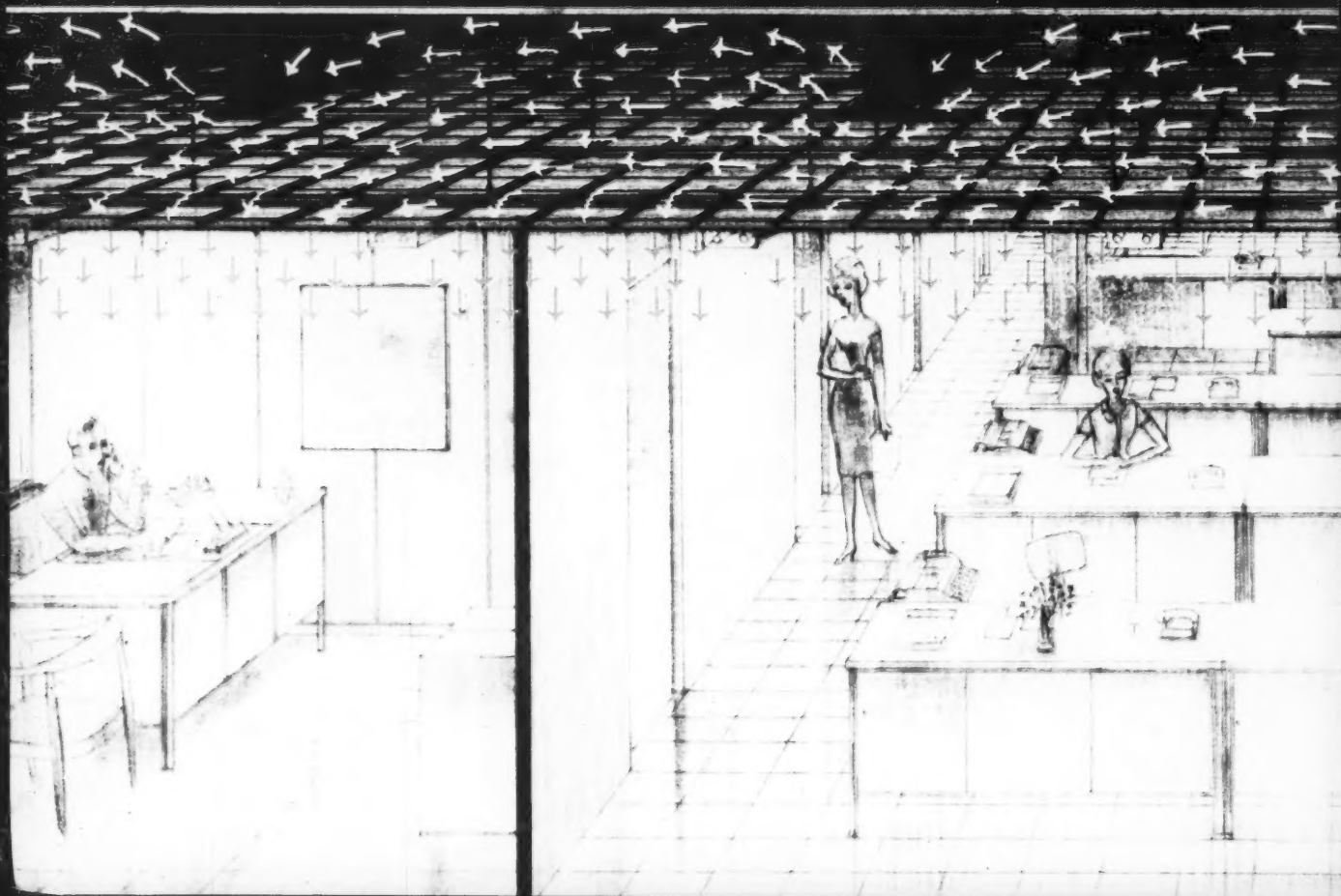


### **1. They air-condition— providing uniform air diffusion**

Since the ceiling itself serves as a diffuser, an even flow of air is provided into and throughout the room. An Armstrong Ventilating Ceiling enables you to eliminate drafts and stagnant areas. Even in low-ceiling areas, draft problems can be eliminated. The picture below of a section of an office building shows how conditioned air is forced, under pressure, from the central unit through ducts to the duct stub supplying each plenum chamber. The result—comfort for all occupants.

### **2. They're self-cleaning—the down pressure provides a perpetual barrier against dirt and dust**

Besides cooling or heating, the air forced through the perforations in an Armstrong Ventilating Ceiling repels dust and dirt, since there is a continuous flow of air flowing downward from the ceiling. The ceiling is, in effect, self-cleaning.



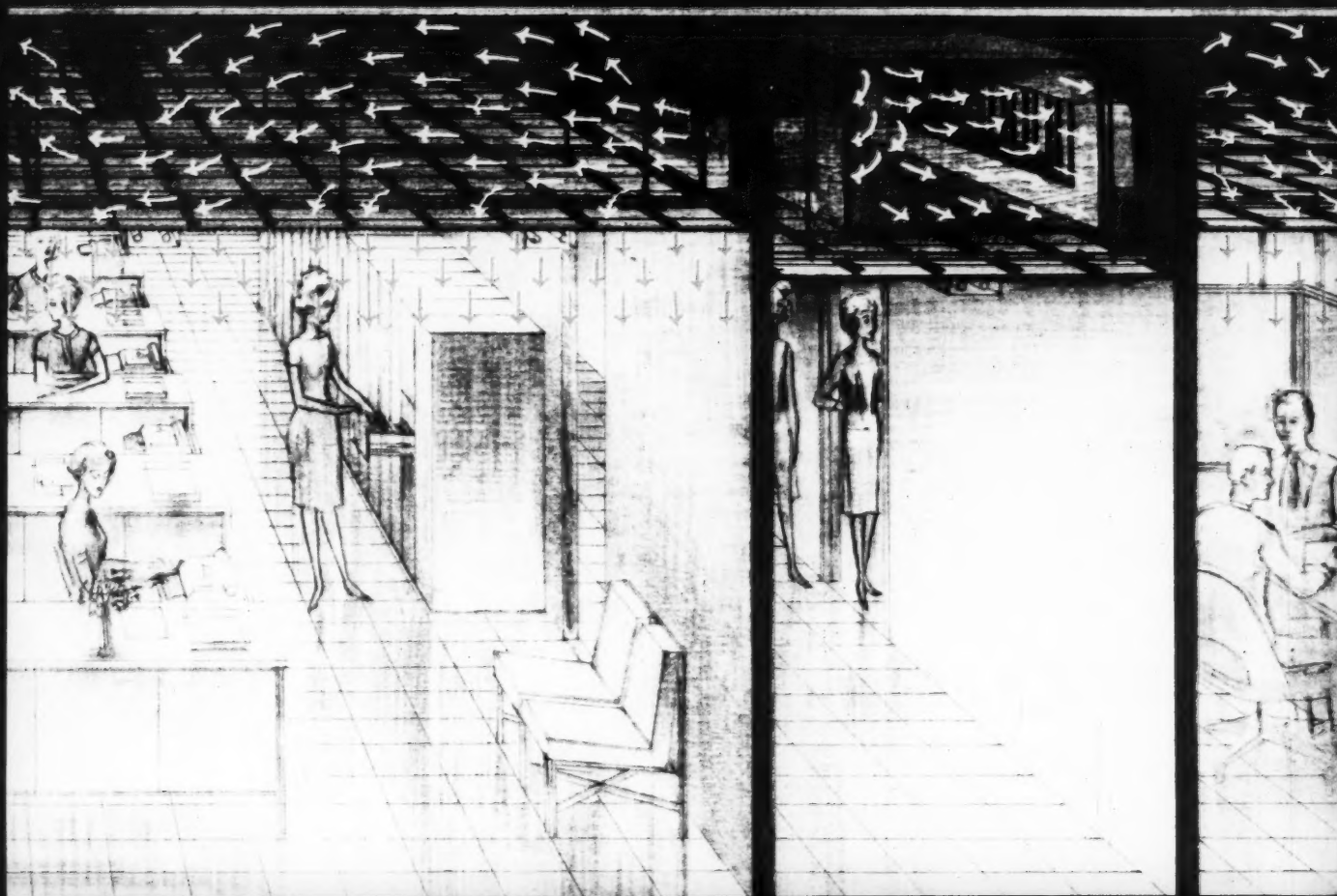


### 3. *They're acoustical—hushing room noises, muffling air-conditioning sounds*

Armstrong Ventilating Ceilings have the same high acoustical properties as other Armstrong Acoustical Materials. Noisy air diffusers are, of course, eliminated. And the suspended ceiling separates occupants from any noise that might be transmitted through air-conditioning supply ducts.

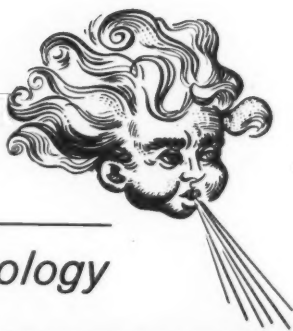
### 4. *The ventilating ceiling can incorporate time-design-rated fire protection*

Armstrong Acoustical Fire Guard is available for use in Ventilating Ceilings. Floor-ceiling assemblies, using Ventilating Fire Guard throughout the ceiling, have been tested at Underwriters' Laboratories. The tiny ventilating perforations in the ceilings accounted for over-all open areas of two per cent. Beam-protection ratings up to four hours have been obtained for Ventilating Fire Guard Tile (UL Report 4177-6), and up to three hours for Ventilating Fire Guard Lay-In (UL Report R-4177-7).

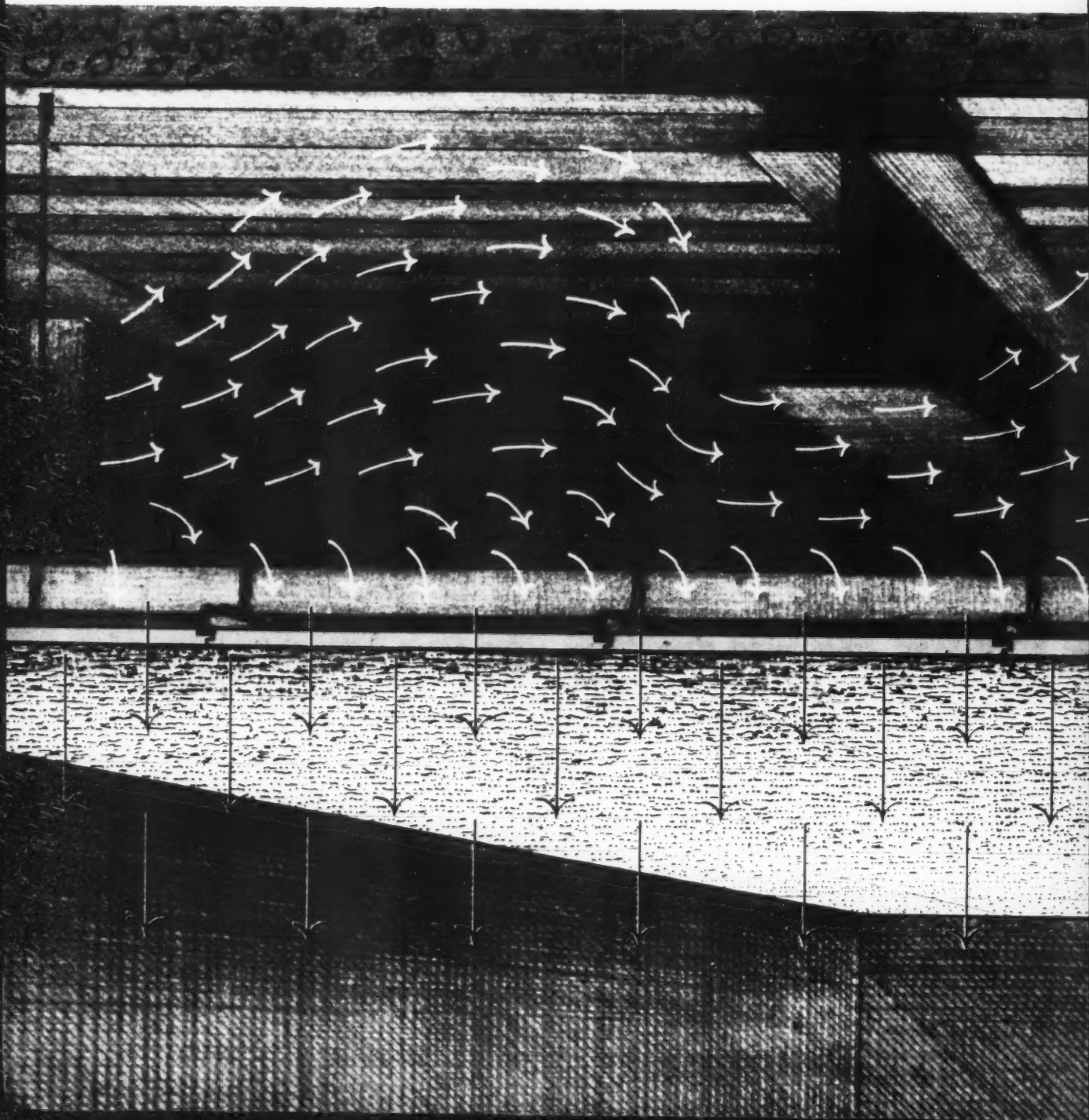




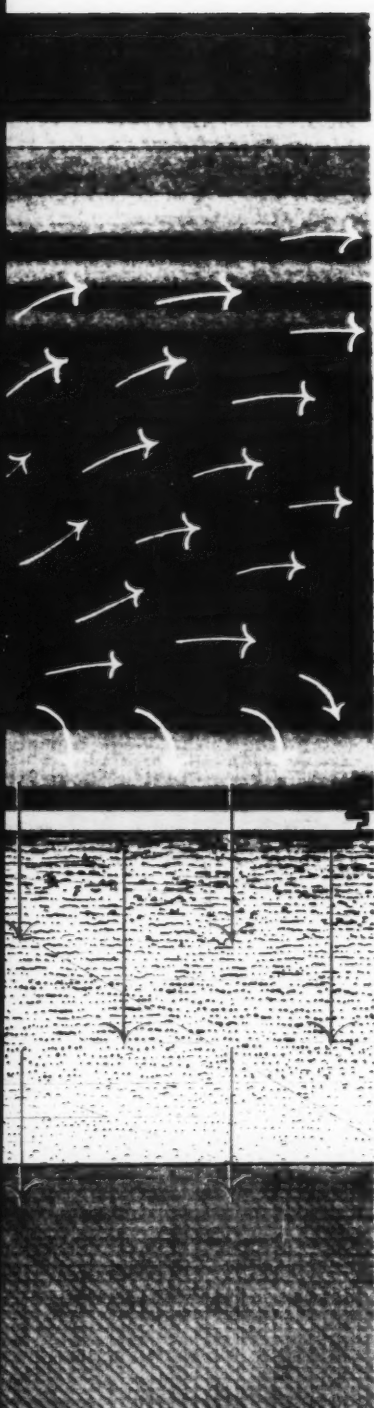
**ARMSTRONG  
VENTILATING  
CEILINGS**



*their technology*







## **1.** *The plenum chamber acts as the duct... the ceiling acts as a diffuser*

This system is remarkably simple in principle. As the sketch demonstrates, conditioned air enters the plenum chamber through the supply-duct stub by a low-pressure air-inlet system. It is dispersed throughout the chamber and is forced down through the ceiling into the room. Any conventional return-air system may be used with Armstrong Ventilating Ceilings. The system has proven very effective even in large plenum chambers. For example, in one installation, air was projected across 80' in a 22" plenum (despite the obstruction of 14" I-beams) and achieved uniform distribution in the area below.

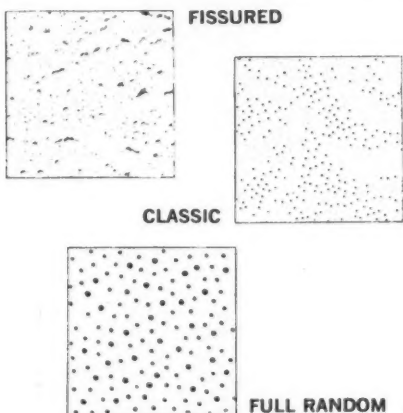
## **2.** *Special plenum- engineering data available*

This data provides all the necessary factors and formulae for the correct design and engineering of plenum chambers where Armstrong Ventilating Ceilings are used as the air-inlet system. This step-by-step procedure has been specially developed for the use of ventilating engineers, and is available through your Armstrong Acoustical Contractor or Armstrong District Office.



## DATA ON ARMSTRONG VENTILATING CEILING MATERIALS

For complete information on Armstrong Ventilating Ceilings, call your Armstrong Acoustical Contractor or one of the Armstrong Offices listed below. Or write to Armstrong, 4200 Miller St., Lancaster, Pa.



### Travertone.

12"x12" fissured, mineral-wool tile, with square or beveled edges.

### Minatone.

12"x12" mineral fiber tile in the Classic and Full Random designs, with beveled edges.

### Minaboard Lay-In.

Nominal 24"x24" and 24"x48" units in the Full Random and Classic designs for exposed grids.

### Fire Guard.

12"x12" fire-retardant tile in the fissured, Classic and Full Random designs with beveled edges.

### Fire Guard Lay-In.

Nominal 24"x24" and 24"x48" units in the Classic design for Fire Guard grid.

Travertone, Minatone® and Minaboard® are trademarks of Armstrong Cork Company.

### Armstrong offices

**ATLANTA, GA.**  
727 West Peachtree St., N.E.  
TRinity 5-7201

**BOSTON, MASS.**  
200 First Avenue, New England  
Industrial Center, Needham  
Heights 94. Hillcrest 4-5700

**CHARLOTTE, N. C.**  
1127 East Morehead Street.  
EDison 3-7741

**CHICAGO, ILL.**  
6535 West Irving Park Road.  
PEnsacola 6-9440

**CINCINNATI, OHIO**  
1057 Meta Drive. ELmhurst 1-3330

**CLEVELAND, OHIO**  
2975 Superior Avenue. MAIn 1-7900

**DALLAS, TEXAS**  
2727 Oak Lawn Avenue.  
LAKeside 6-7468

**DENVER, COLO.**  
35 West 5th Avenue. CHerry 4-0543

**DETROIT, MICH.**  
Free Press Building, 321 Lafayette  
Ave., West. WOODward 3-8322

**KANSAS CITY, MO.**  
500 West 26th Street. VICTor 2-9154

**LOS ANGELES, CALIF.**  
5983 E. Smithway Street.  
RAYmond 3-9381

**MINNEAPOLIS, MINN.**  
4539 Hiawatha Ave. PARKway 1-2447

**NEW YORK, N. Y.**  
60 West 49th Street, Rockefeller  
Center. JUdson 2-3700

**PHILADELPHIA, PA.**  
301 City Line Avenue. BALa-  
Cynwyd. TENnyson 9-6640

**PITTSBURGH, PA.**  
24th St. & Allegheny River.  
ATLantic 1-7474

**ST. LOUIS, MO.**  
1919 Hampton Ave. MISSION 7-3200

**SAN FRANCISCO, CALIF.**  
1814 Ogden Drive, Burlingame.  
OXford 2-1833

**SEATTLE, WASH.**  
221 Minor Ave., North. MAIn 3-2772

**CANADA**  
6911 Decarie Boulevard.  
Montreal 29, Quebec

### Some recent installations of Armstrong Ventilating Ceilings:

**Battle Creek Country Club, Battle Creek, Mich.**  
architect: Haughey, Black and Williams, Battle Creek  
mechanical engineer: Meckler Engineering Co.,  
Toledo, Ohio  
general contractor: Phelps-Wagner Builders, Battle Creek  
acoustical contractor: B. C. Schuermann Co., Battle Creek

**Dinwoodey Furniture Company, Salt Lake City**  
architect: Snedaker-Budd-Monroe & Associates, Salt Lake City  
mechanical engineer and contractor: Richard C. Brown, Mayne  
Plumbing and Heating, Salt Lake City  
general contractor: Cannon Construction Co., Inc., Salt Lake City  
acoustical contractor: Utah Pioneer Corp., Salt Lake City

**Northern Federal Savings and Loan Association, St. Paul, Minn.**  
architect and ventilating engineer: Associated Architects  
and Engineers, Inc., St. Paul  
mechanical contractor: Pierre Aircon Co., St. Paul  
general contractor: William Baumeister Construction Corp.,  
St. Paul  
acoustical contractor: St. Paul Linoleum and Carpet Co., St. Paul

**Arizona Bank, Home Office Motor Bank, Phoenix**  
architect: Lester Byron, Phoenix  
general contractor: Ray P. Petersen Contractor, Inc., Phoenix  
acoustical contractor: Barrett-Homes Contractors, Phoenix

**Armstrong General Office Building, Lancaster, Pa.**  
consulting engineer: Charles S. Leopold, Inc., Philadelphia  
mechanical contractor: B&G Olsen Co., Inc., Richmond, Va.  
acoustical contractor: Berger Acoustical Co., Inc., Haverford, Pa.

**Lit Brothers Restaurant, Philadelphia**  
architect: O. L. Fallan, AIA, Philadelphia  
chief designer: John Jones, Philadelphia  
acoustical contractor: Berger Acoustical Co., Inc., Haverford, Pa.

**John Deere Office Building, Moline, Ill.**  
architect: R. B. DeJeager, company architect, Moline, Ill.  
ventilating engineer: Ward Jensen, company engineer, Moline  
general contractor: Axel Carlson Company, Moline  
acoustical contractor: Builders Sales & Service Co., Moline

**4747 Building, Phoenix**  
architect: Ralph Haver & Asso., Phoenix  
mechanical engineer: Lowry & Sorensen, Phoenix  
general contractor: Gilbert & Dolan, Phoenix  
acoustical contractor: Barrett-Homes Contractors, Phoenix

**St. Paul's Church Home, Inc., St. Paul, Minn.**  
architect: Buetow and Associates, St. Paul  
mechanical contractor: Healy Plumbing & Heating Co., St. Paul  
general contractor: J. S. Sweitzer & Son, St. Paul  
acoustical contractor: St. Paul Linoleum and Carpet Co., St. Paul

## Armstrong ACOUSTICAL CEILINGS



WESTERN SECTION EDITOR: Elisabeth Kendall Thompson, A.I.A.

2877 Shasta Road, Berkeley 8, California

## Shades Before Our Eyes

"An architectural renaissance is taking place today" . . . etc. . . . etc. This is being said often and in many places, and especially to the general public. But is it true?

An architectural renaissance implies sureness of direction, conviction of personal belief, certainty of essentials—not only by the architect, but by that necessary factor, the client. Can it truly be demonstrated that this state of mind has been achieved by either part to the proposition of architecture?

A building here; a neighborhood there; a fountain, a mural, a sculptured panel; a handsome square, a landscaped plaza. Delightful, but—an architectural renaissance?

For each stanchly persuaded client there are a hundred thousand anxious to imitate; for each architect of conviction and certain knowledge there are thousands who imitate—without even realizing that they imitate. Is this a renaissance?

If there is a renaissance—and we are not convinced that this is a time when a renaissance could develop—it is not so much a *rebirth*, a fresh start, with new values, strong directions and sure knowledge, as it is the removal of dark shades from before eyes whose owners never thought before to take them off.

But whose eyes are seeing now? Yours? Mine? No—the eyes that are beginning to see, that are being asked to look, belong to the great general public. For them—for some of them—there is a sort of renaissance.

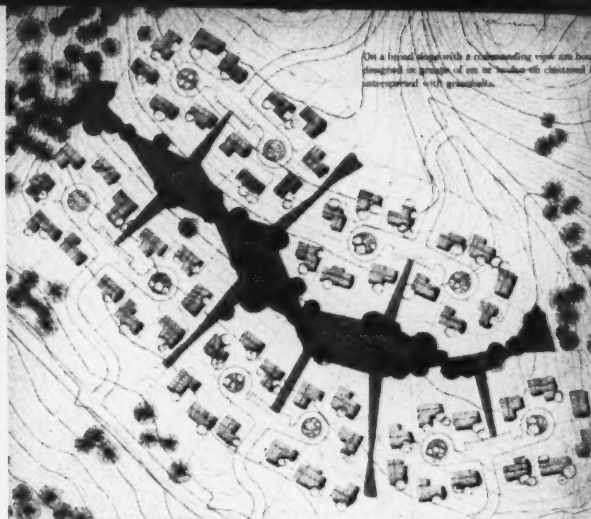
Some of them see freeways decimating cities and cutting through countrysides; new buildings which block cherished views to incomparable sights; old and loved buildings torn down and replaced by parking lots; expensive buildings turning blank façades to all the eyes that a city contains. Architects, they know, do these structures. Do these add up to "an architectural renaissance"?

The public has to believe what it hears from those who are trained and skilled in a field. If we don't refute the "architectural renaissance" theorem, we compound their confusion. When an "architectural renaissance" comes about, there will be no doubt of it.

In the meantime, architects can take the shades from before *their* eyes; can appraise with clarity and honesty what they do; can initiate the climate for a renaissance-to-come by the quality of the work they do.

E. K. T.





Single family houses (A)

## A SUBDIVISION WHICH PRESERVES THE SITE'S NATURAL CHARACTER AND BEAUTY

For this unusually beautiful tract of virgin land whose meadows and wooded canyons overlook the Pacific Ocean on one side and Carmel Valley on the other, the architects have developed a plan which not only preserves the natural character and beauty of the site but provides the number and variety of lots necessary to make the project feasible.

The plan develops naturally from the varied slopes of the land: canyons too steep for building are retained as permanent greenbelts; areas of gentler grades are also open spaces of different kinds; near-level plots are designated for building. To make full use of the level areas, and to keep open as much land as possible, houses and multi-family buildings are grouped in clusters, instead of spread over all the tract as in the usual subdivision. This technique, and the elimination of individual garages and driveways, provides the plan's most impressive statistic: 160 acres—two thirds of the total acreage—are permanently designated open areas for common use, and 61 additional acres are private open space. Streets, all of which are parkways, provide another 24 acres of open-

ness. Despite this semi-rural land use, High Meadow will have a population of over 1000.

Each lot has been laid out to meet an over-all zoning standard of a half acre. The type and size of house or apartment group varies according to the special assets of the plot on which it is located: patio houses are on level lots; two-story terrace houses have split-level plans to take full advantage of their hill sites; two-story maisonettes stand in broad open meadows dotted with oaks; luxury houses have spectacular views from a hilltop location; and town houses circle the crest of a high hill. Apartment buildings are set on hillsides, leaving the heavily wooded hilltops as vistas for residents of both High Meadow and Carmel. For all the variety, the buildings as a whole are related through the limited number of colors and types of materials used, and especially through their architectural design approach, reflecting both the character of High Meadow and of the Monterey Peninsula area. An over-all landscape plan and cooperative maintenance will further contribute to the unity of the project.



Patio houses with Common Green (B)

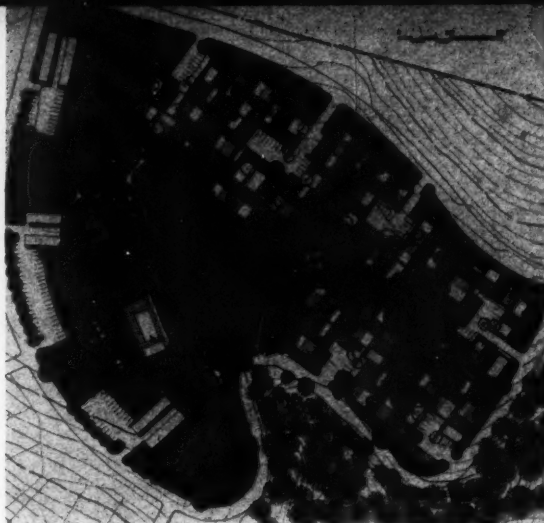


Maisonettes on broad lawns (C)





Patio houses (B)



Maisonettes (C)



Terrace houses (D)

*High Meadow, Carmel, California*

OWNER AND DEVELOPER:

*Carmel Land Company*

ARCHITECTS AND PLANNERS:

*Hall and Goodhue*

CIVIL ENGINEERS:

*G. A. Fitch, Design Associates, Inc.*

LANDSCAPE CONSULTANT:

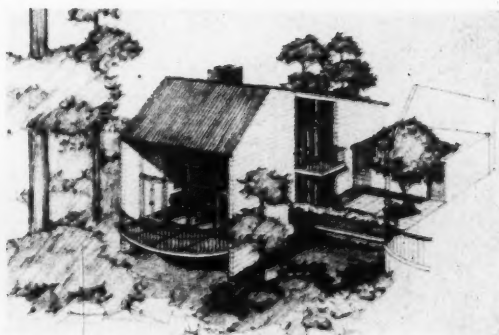
*George Hoy*



- A. Single Family Houses
- B. Patio Houses
- C. Maisonettes
- D. Terrace Houses
- E. Town Houses

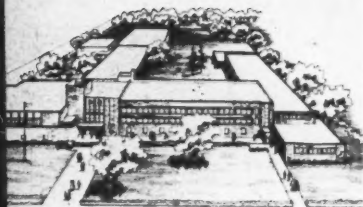


Terrace houses on hillsides (D)

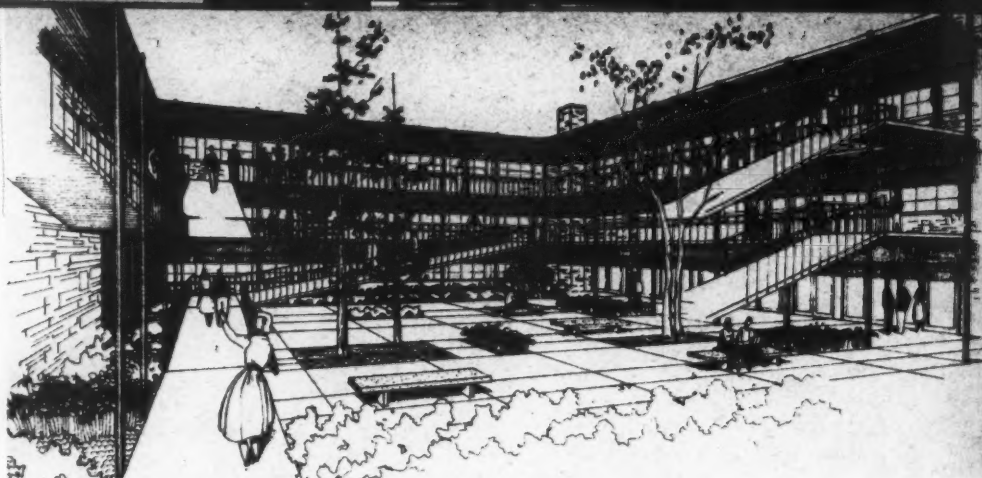


Town house on hill crest (E)





OLD SCHOOL: built in 1937



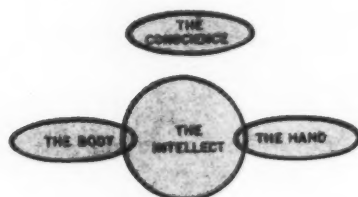
BALCONADES: "for a permanent building whose design can change"

## EXPANDING AN OLD SCHOOL PLANT TO MEET NEW EDUCATIONAL CONCEPTS

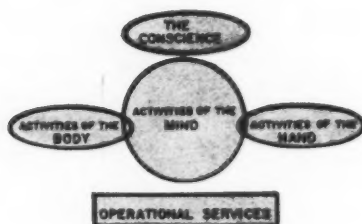
Boulder High School, School District Number 3,  
Boulder, Colorado

Glenn A. Gilbert, Program Planning Director

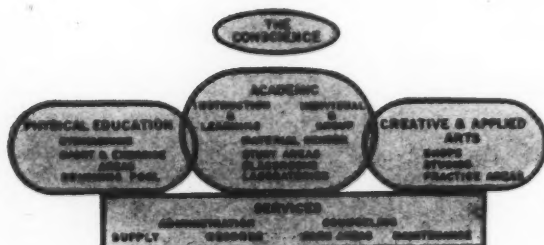
Hobart D. Wagener, Architectural Consultant



Functions of a school



Operation of a school



Scheme of a schoolhouse

Like many another community, Boulder, Colo., faces the problem of providing additional educational facilities for its children, and has had to decide whether it will remodel and add onto its existing buildings or replace them with new buildings. Its conclusion, based on a study by a citizens' committee, was that the structurally-sound high school should be extensively remodelled and added onto. But in the course of assembling facts on which to make a decision, the committee found itself deep in consideration of new educational concepts and their effect on school plant design. Its report accordingly recommended, with unusual intelligence, that a careful study be made of curriculum and teaching changes already being discussed and proposed by educators *before* any design or construction decisions were made.

The school district did even better: with funds from the Educational Facilities Laboratory, Inc., it released one of its teachers, Glenn Gilbert, mathematics department chairman at Boulder High School, and appointed Boulder architect Hobart Wagener to constitute an educator-architect team to study possible educational changes and suggest a school design which would "permit foreseeable program changes and allow for a degree of unpredictable change."

On the premise that a school building's design can be a "valuable adjunct to the educative process," they proposed certain innovations in Boulder High's plan and appearance, devised to meet current known program needs and to be adaptable to unknown future needs. They proposed first a material center for the whole school, centrally located; new interior treatment for classrooms, including furnishings, draperies, carpeting, acoustical treatment; and varied classroom sizes, using operable walls and modular wall panels, to suit new teaching needs.

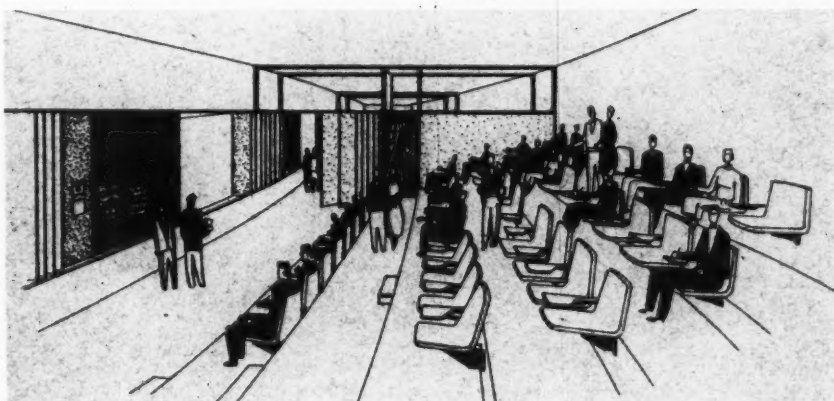
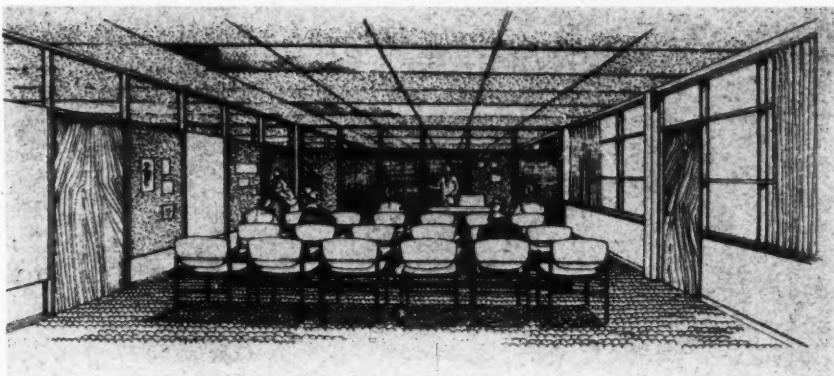
To get students to classrooms, corridor expansion was clearly indicated, but proved impractical. The "balconades"—covered balconies along the outside walls of existing buildings—which they propose do two immediate things: serve as traffic lanes, and free the old corridor space for teaching space—flexible, adaptable, convertible. Their relatively low square foot cost, their application as sun controls, and availability for emergency evacuation are all plus values. New kinds of lecture rooms are suggested by the proposed conversion of the auditorium.



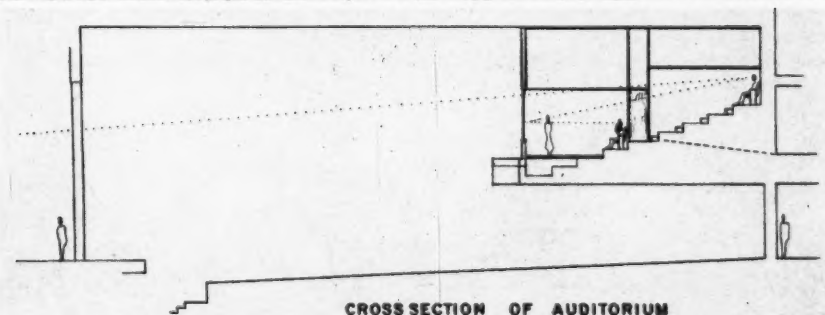
**MATERIAL CENTER:** study area,  
carrels, listening-seeing booths



**MEDIUM-SIZED CLASSROOM:**  
uses new wall and ceiling materials,  
draperies, carpeting



**AUDITORIUM:** special problem  
partly solved by converting balcony  
for multiple use as lecture rooms

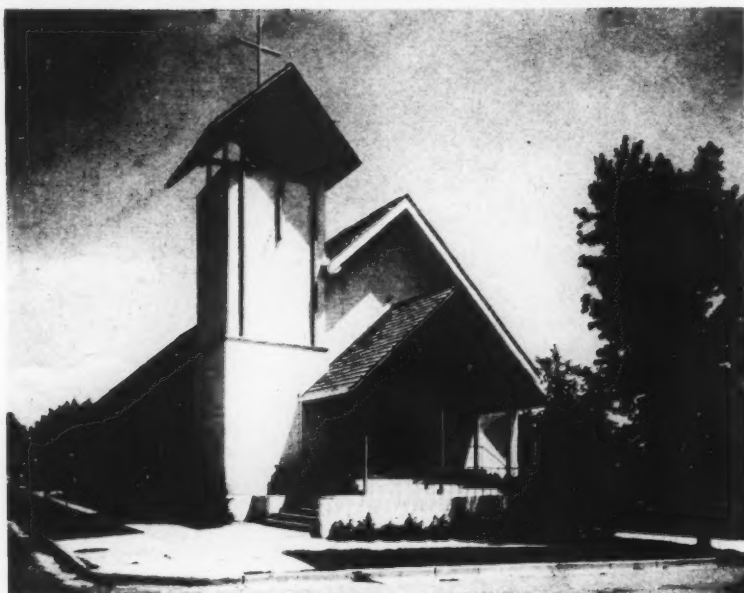


**CROSS SECTION OF AUDITORIUM**



## HONOR AWARDS

"A concept conceived and carried out with conviction and consistency; sensitive and restrained use of materials." Madison Investment Company, Denver. Donald R. Roark, architect



Guy Burgess



"Dignity and strength, especially of interior; achieves religious feeling rare in contemporary churches." Remodelled Washington Park Church, Denver. W. C. Muchow & Associates, architects

## COLORADO TO CIRCULATE EXHIBIT OF AWARD-WINNING BUILDINGS

Eight buildings by six Colorado firms have been awarded honors in the first honors program ever held by the Colorado chapter, A.I.A. The buildings were chosen from 45 entries by a jury whose members were architects Pietro Belluschi and Walter Netsch and RECORD senior editor Elisabeth K. Thompson. The chapter has assembled the panels of the winning buildings into an exhibit which will circulate throughout Colorado. It already has one exhibit in circulation—"100 Years of Colorado Architecture"—assembled three years ago for the state's centennial celebration.

DeVon Carlson, acting head of the department of architecture and architectural engineering at the University of Colorado, and Lamar Kelsey, chapter president, were in charge of the awards program.

*more on page 32-8*



Art Hupp

"Spare, simple, direct; friendly, inviting quality achieved without self-conscious striving for effect." Fredrick Benedict residence, Aspen, Colo. Fredrick Benedict, architect





## Now from the Depths of the Earth Comes a Pure White Cement

The West's only white cement is the purest white you've ever seen. That's because Riverside is the only white cement manufactured from limestone mined deep underground in its purest uncontaminated state—purity that also means a uniformity of color never before possible. But materials are only half the story. Riverside White is a product of unique modern facilities, the most advanced white cement technology to be found anywhere.

For the architect, Riverside White means a wider range of potential applications—no longer must white cement be reserved only for "showpiece" construction. Now with a dependable source of supply nearby, you can let your imagination go!

For the contractor, Riverside White means an immediate source of uniform white cement with the workability of Riverside Gray—and it means immediate technical assistance too.

For the dealer, Riverside White offers the handling convenience of palletized delivery, the reduction of costly inventories, the saving of precious warehouse space.

Now you can design more with white, build more with white!



**RIVERSIDE CEMENT COMPANY**  
2404 Wilshire Boulevard, Los Angeles



Gay Burgess



Gay Burgess



## COLORADO AWARDS

*continued from page 32-6*

### MERIT AWARDS

"Well-organized plan, good proportions . . . buildings well related to pleasantly landscaped outdoor spaces." Air Force Academy High School, Colorado Springs. Bunts and Kelsey, architects

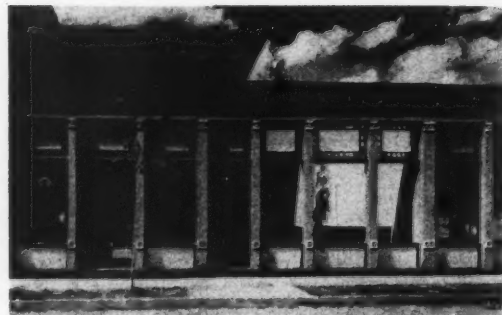
"A welcome contribution in the usual chaos of city commercial areas . . . striking and dignified; effect achieved with economy of materials; simple, restrained signs." KOA Radio Station, Denver. Moore, Sink & Bush and Thomas E. Moore, architects

"Although strongly derivative, it has consistency and serenity—at least on exterior; reliance on scale, order and dignity commended; interior less successful." House in Denver. Tician Papa-christou, architect

"Effective, pleasant treatment . . . with quality of serenity appropriate to its use." Cragmor Home for the Aged, Colorado Springs. Bunts and Kelsey, architects

### SPECIAL COMMENDATION

"Commendable preservation of facade of an old building and of tree on site, calling attention to a useful and pleasant way of preserving landmarks." Gallun Building, Aspen, Colo. Fredrick Benedict, architect



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- 2 **ACME ENTRANCES** Standard and custom aluminum entrance doors with a choice of hardware and door controls.
- 3 **ACME SLIDING DOORS** Incorporating genuine Arcadia design features in stock-size aluminum sliding doors, competitively priced for residential and light commercial construction.
- 4 **ARCADIA ARCHITECTURAL SLIDING DOORS** Stock and custom aluminum sliding doors, multi-slide doors and special units for quality residential, heavy duty commercial and monumental applications.
- 5 **ARCADIA ARCHITECTURAL SLIDING WINDOWS** A complete range of standard and special sizes in two series of superior all-aluminum sliding windows.
- 6 **ARCADIA INTEGRATED WINDOW-WALL SYSTEMS** Available in two series of aluminum framing components which are factory-fabricated into self-contained floor-to-ceiling units, designed to accommodate any desired configuration of fixed and sliding panels, ventilating sash, door bucks, and windows.
- 7 **ARCADIA BRISE-SOLEIL** A true sun control system offering wide flexibility in design, finish, shading, and installation...consisting of aluminum grid panels factory-fabricated to specification.
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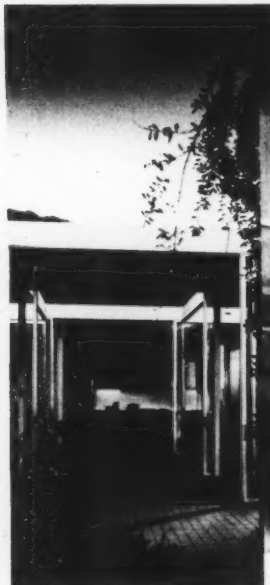








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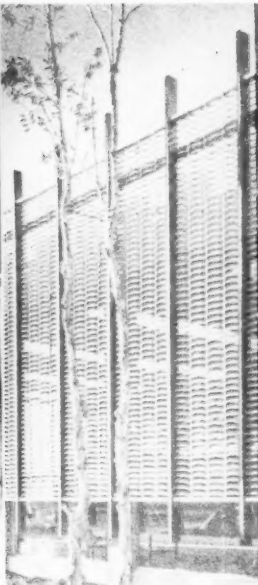
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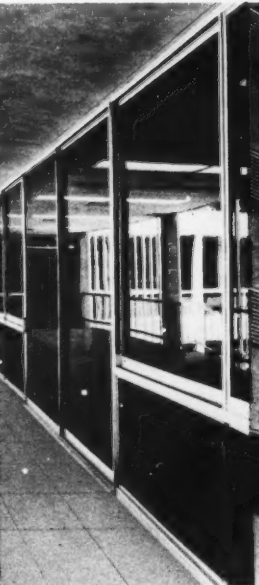
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ARCADIA Brise-Soleil is a true sun control system which combines effective reduction of glare and heat with sculpturally contoured architectural patterns. It can be engineered to provide 100% shading of direct solar rays during normal occupancy hours the year-round in all temperate and tropical latitudes...while providing up to twice the horizontal visibility of single plane louvers. Utilizing the principal of inverse planes, it is furnished in two standard blade configurations or in custom variations. Savings through reduction of costs for air conditioning equipment or methods often will more than pay for the cost of Brise-Soleil.



#### WINDOW WALL

ARCADIA's two window-wall systems, the 700 Series and the 800 Series, have been designed to provide maximum flexibility in self-contained floor-to-ceiling framing systems. They are adaptable to both single and multi-story structures and may be installed in front of, between or behind columns. Both systems allow virtually any desired configuration of fixed or sliding panels or windows, spandrel or transom panels, ventilating sash, swinging or sliding doors. Arcadia's extensive experience as a pioneer in sliding fenestration has resulted in weathertight, trouble-free systems which meet the most critical considerations of performance, aesthetics and flexibility in design.



#### CURTAIN WALL

Pacific Curtainwall engineers, fabricates and installs both standard and custom curtainwall systems. Standard systems are flexible in module and choice of panel materials. Of four standard systems one features a steel bearing wall, and two are designed with steel lift-in panel units. All may be furnished with aluminum exterior covers. Series 500 is an all-aluminum system primarily for multi-story buildings, featuring one piece mullion, with very narrow, flush sight lines. Pac/Wall's experience in the engineering and fabrication of custom designs is shown by the many outstanding buildings utilizing Pac/Wall systems.

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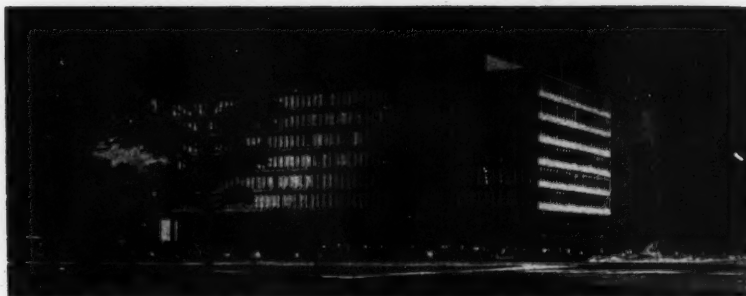
Julius Shulman

**RESEARCH LAB WITH A VIEW:** In this recently dedicated research laboratory for Hoffman Electronics Corporation in Santa Barbara, each scientist's office has a view to the Santa Inez Mountains, and the laboratory which adjoins it opens onto a landscaped patio. Covered walks join the buildings in the group. Entrance stairs are reflected in a large pool over which they rise. A swimming pool is also included in the complex. William L. Pereira & Associates, architects



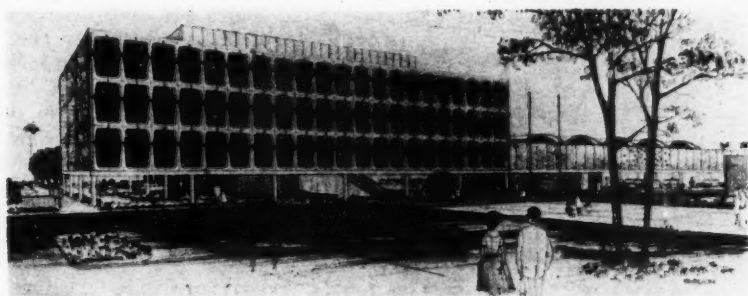
**IBM IN HONOLULU:** This new IBM Building is now under construction on Ala Moana Boulevard in Honolulu, and will be finished in the early summer of 1962. Prestressed, precast concrete "ribbons" form a sunscreen with a honeycomb pattern which is used on all four sides of the building. Vladimir Ossipoff is the architect

## Western Buildings in the News



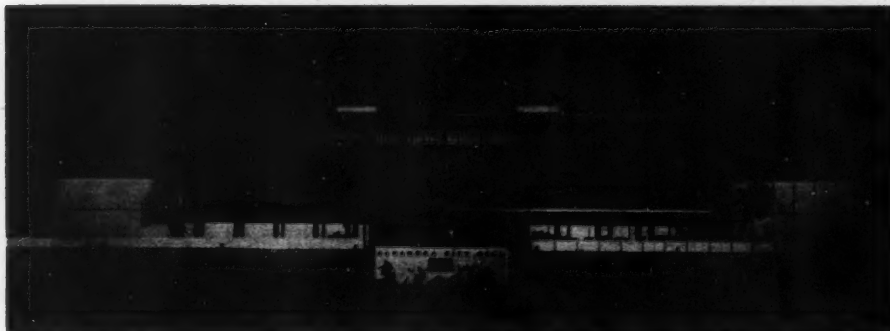
Davis Studio

**FEDERAL BUILDING FOR SALT LAKE CITY:** This new \$10 million, eight-story Federal office building for the General Services Administration will be set back 90 ft along its front and 25 ft on one side, providing a paved and landscaped plaza from which the building rises. The first two floors are recessed 25 ft behind the line of the upper floors, increasing the openness at street level. Walls of the recessed area are glass. The structure is steel and reinforced concrete. A five-ft module was used, each fully serviced by electrical and air conditioning utilities. Deseret Architects and Engineers and Snedaker, Budd, Monroe & Associates are architects and engineers



**POLICE HEADQUARTERS BUILDING:** This new divisional police headquarters building for the Los Angeles Police Department is to be in Van Nuys, providing a base for operations in the San Fernando Valley area. The building will occupy a five-acre site in the civic center. In addition to the administrative office building, the headquarters includes a jail and such support facilities as a garage and vehicle repair and maintenance building. A feature of the buildings design is that the air conditioning exhausts through vents provided by the thin shell vaults of the roof. Daniel, Mann, Johnson & Mendenhall and Larsen, Kahn & Farrell, architects and engineers associated in a joint venture for the project

**CITY HALL:** The new city hall in Alhambra, Calif., can be entered from two streets, and on each of these it has the same elevational design. The lobby is recessed behind the building line and is enclosed with glass panels. The upper floor is shielded from the sun by a 21-ft-high ceramic screen. William Allen was the architect for the \$1 million building





## Professional News

### New Offices

*John B. Rogers and Jerome K. Nagel* have formed the partnership of *Rogers & Nagel* with offices at 105 Fillmore St. and 1535 High St., Denver.

*William I. Williams* has established offices as *William I. Williams & Associates* at 3033 N. Central Ave., Suite 704, Mayer-Central Building, Phoenix, Ariz.

*David E. Austin* and *Donavon D. Nickel* have been named associates of consulting engineers *Ketchum, Konkel & Hastings*, Denver, Colo.

*Gared N. Smith*, architect, of the firm of *Levanas & Smith* has opened his own office in the Westcliff Professional Center, 17th St. and Irvine Ave., Newport Beach, Calif.

### New Addresses

The new firm of *Stanford Architec-*

*tural Specialties* has opened offices at 126 Post Street, San Francisco.

*J. P. Hawke & Associates*, consulting structural engineers, have recently opened offices at 503 Market Street, San Francisco.

*Howard Allen Kinney*, architect, has recently opened an office at 9046-39th Ave. S.W., Seattle, Wash.

*Tom Hite*, architect, has moved to 616 E. 16th Avenue, Denver, Colo.

*Balzhiser, Seder & Rhodes* have moved to 755 Country Club Road, Eugene, Ore.

### Firm Changes

The architectural firm of *Levanas & Smith* has been dissolved. *Raymond Levanas* remains in the present offices at 3432 Via Opporto, Newport Beach, Calif.; *Gared N. Smith* has opened a new office in the Westcliff Professional Center, Newport Beach.

The new firm name of *Johnston & Smith* is *Johnston & Associates, Architects* with offices remaining at 13 North 8th Street, Payette, Ida.

*Austin, Field & Fry*, Los Angeles architects and engineers, and the Hawaiian architectural firm of *Frank Slavsky, A.I.A.*, have formed a Pacific Division association with offices newly established in the Halau Building, International Market Place, Honolulu, Hawaii.

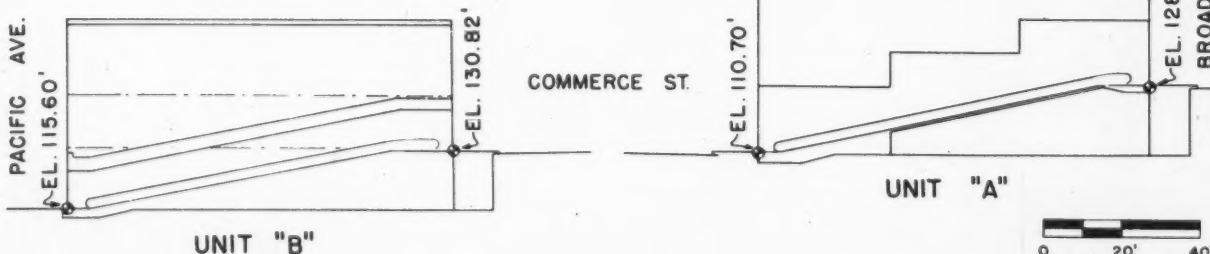
*Charles Luckman Associates*, Los Angeles, has acquired full interest in the San Diego firm of *Richard George Wheeler & Associates*. The San Diego firm will continue to operate as a division of *Charles Luckman Associates*. *Richard Wheeler* has been named a vice president in CLA.

### Elections and Appointments

*Harold D. Hauf*, vice-president for design and planning with *Charles*  
*continued on page 32-16*

## TACOMA SIDEWALK MOVES PEOPLE UP HILL STREET

Tacoma residents got tired enough of climbing some of their downtown hill streets to vote a bond issue in 1957 to build four "escalades" at strategic points in the downtown area. Two of the escalades have been built and have been in use since last May; two more are expected to go into use this fall. Mass transit was provided in the area by a cable car system, operated for some years until forced out by declining patronage and the rise of the private motor vehicle; in recent years, however, parking has again raised the problem of pedestrian circulation by way of the steep streets. The moving sidewalk was decided upon to meet the need for mass transit (and business stimulus) in the business district and to provide immediate connection between the downhill office areas and the uphill retail store area. Each escalade has an up and a down ramp; each is located in the center of one of Tacoma's extra-long downtown blocks (625 ft). *Lea, Pearson and Richards* are architects for the escalades; *Jardeen Brothers* were general contractors on Unit A, the first to be built.







Architect: Germano Milono, A.I.A.

**safety \* beauty \* economy** The Study Hall of Monterey's Santa Catalina School for Girls was designed to combine maximum safety with utility and beauty. Fluor Laminated Rigid Frames were chosen to meet the design requirements of broad span, unobstructed floor area, and high resistance to earthquake shock and fire. The six rigid frames are placed at 16' intervals, providing a complete clear span roof support over a 60' x 90' floor. Each unit consists of tapered beams fixed to columns. The total cost of the building was approximately \$15.80 per square foot, another example of the substantial savings you get when you use Fluor Glu-Lam heavy timber construction. Structural Engineer: John E. Brown, San Francisco and Santa Rosa, California. Builder: Joseph B. Fratessa, Monterey, California.



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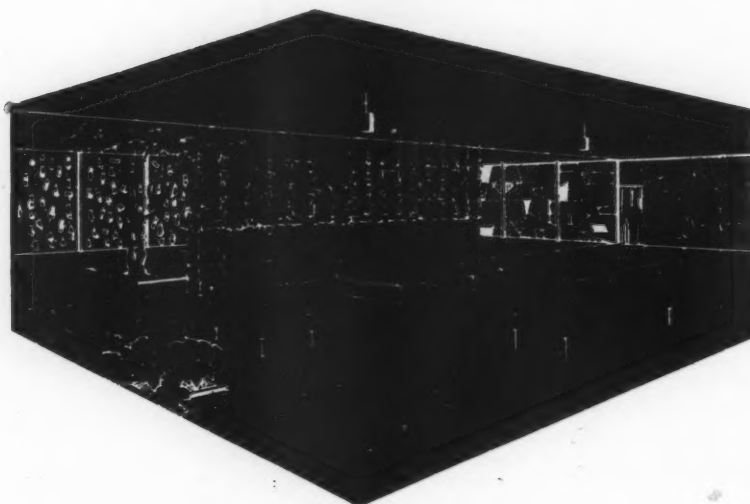




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## Professional News

continued from page 32-14

Luckman Associates, has been elected vice president of the Building Research Institute.

Walter Hagedohm was installed recently as president of the Los Angeles Chapter of the Construction Specifications Institute.

Charles Luckman has been named to the Advisory Committee of the National Rivers and Harbors Congress for the 16th Congressional District of California. Luckman also serves as a member of California Governor Brown's commissions on metropolitan area problems and state college planning.

Donald Schoell, Del Mar, Calif., architect, has been appointed a member of the Del Mar Planning Commission, succeeding John Lloyd Wright, first chairman of the commission, who recently resigned.

Louis A. DeMonte, campus architect at the University of California, is president of the Association of University Architects. He succeeds Winston Close of the University of Minnesota.

Ernest J. Kump of Palo Alto, Calif., was recently appointed adjunct professor of architecture at Columbia University. As director of graduate research at the School of Architecture, he will initiate a graduate program of study in the field of school planning and design.

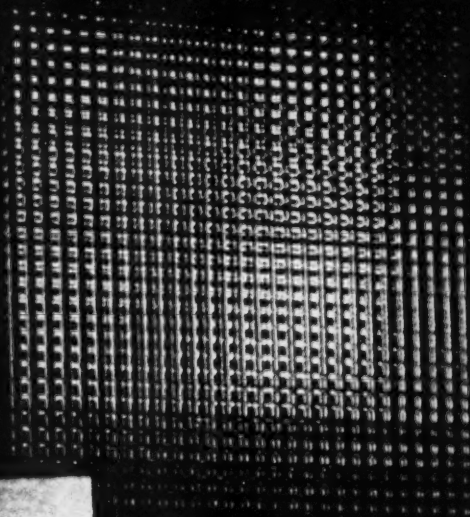
Maynard Woodard, director of design and executive vice president of Welton Becket & Associates, is in charge of the newly merged land-planning and design departments.

Newly elected officers of the Spokane Chapter, A.I.A. are: John McGough, president; Fulton G. Gale, Jr., vice president; Frederic A. Long, secretary; N. A. Kabush, treasurer. Executive board members are Keith T. Boyington, James K. Barnard and Donald H. Murray.

Serge P. Petroff has been elected a vice president of the firm of Charles Luckman Associates.

more news on page 32-19





COOLITE

MAGNALITE B

Pottery by MARIE of San Ildefonso

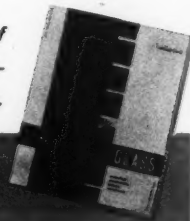
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Glass by Mississippi for better daylight is also available in a variety of patterns and surface finishes (with or without wire) that fulfill the primary function of diffusion, decoration, and protection. See your nearby distributor of quality glass.

Coolite, glare reduced one side, installed in St. Bridget's Church, Copake Falls, N. Y.  
Architects: Cataldo & Vikre, A. I. A., Schenectady, N. Y.  
Glass by: Pittsburgh Plate Glass Company, Poughkeepsie, N. Y.  
Glazing by: James S. Sucato  
General Contractor: A. Testa & Sons  
Color photo, courtesy of Rev. Gerald F. Millett

## SEE OUR CATALOGS IN SWEET'S:

Industrial	6A
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Plant	10A
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	Mis
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Construction	Mis



Coolite Wire Glass graces Prince of Peace Lutheran Church, Phoenix, Arizona. A striking example of architectural beauty and perfection of design made possible with translucent, light diffusing glass.

Glazing contractor: W. P. Fuller & Company



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## Professional News

continued from page 32-16

New officers of the Seattle Chapter, A.I.A., are *Hugo Osterman*, president-elect; *Ibsen A. Nelson*, first vice president; *Dan F. Miller*, second vice president; and *David A. McKinley Jr.*, secretary. *Gene Martenson* continues as treasurer. Directors are *John M. Morse*, *Victor Steinbrueck*, *Aaron Freed* and *Stephen H. Richardson*.

*Aubrey Horn* and *Ralph H. Flewelling* are the new vice president and director of the firm formerly known as *Flewelling and Moody*. The firm name has been changed to *Flewelling, Moody & Horn*, architects and engineers.

### Museum Screens Architects For Its New Building

The new Oakland Museum's architect is in the process of selection by an architecture subcommittee of the Mayor's Committee, and will be announced shortly. Thirteen firms are being personally interviewed by the subcommittee, whose chairman is Mrs. Fenner Fuller. Three finalists will be carefully considered before the selection is made.

The thirteen firms are *Campbell & Wong*, with *Pietro Belluschi*; *Skidmore, Owings & Merrill*; *Mario Ciampi* with *Pier Luigi Nervi* and *Marcel Breuer*; *Richard Neutra*; *Walter Gropius*; *Philip Johnson*; *Paul Rudolph*; *Eero Saarinen*; *Jose Sert*; *Minoru Yamasaki*; *Warnecke & Warnecke*; *Treichel and Gibbs*; and *Reynolds and Chamberlain*. The last three are Oakland firms.

A bond issue was passed last spring, after several tries, which will permit construction of the museum, a much needed municipal amenity.

### California Starts Two New State Colleges

California's program of expanding its state college system is under way with the start of construction of two new campuses, one in Alameda County in the northern section, the other in Orange County in the south. In fact, during 1962-63, \$87 million will be spent on 103 new buildings at state colleges. The buildings have been given priority ratings on the state colleges' Trustees' list.

The new campus in Orange County is to have an \$8.2 million science classroom building, said to be the largest ever planned so far in this country.

Expansion of the state college campuses and construction of the new campuses all over the state is in line with the program announced some years ago in which California intends to concentrate all undergraduate work on such campuses, with the Berkeley campus a center for graduate work.

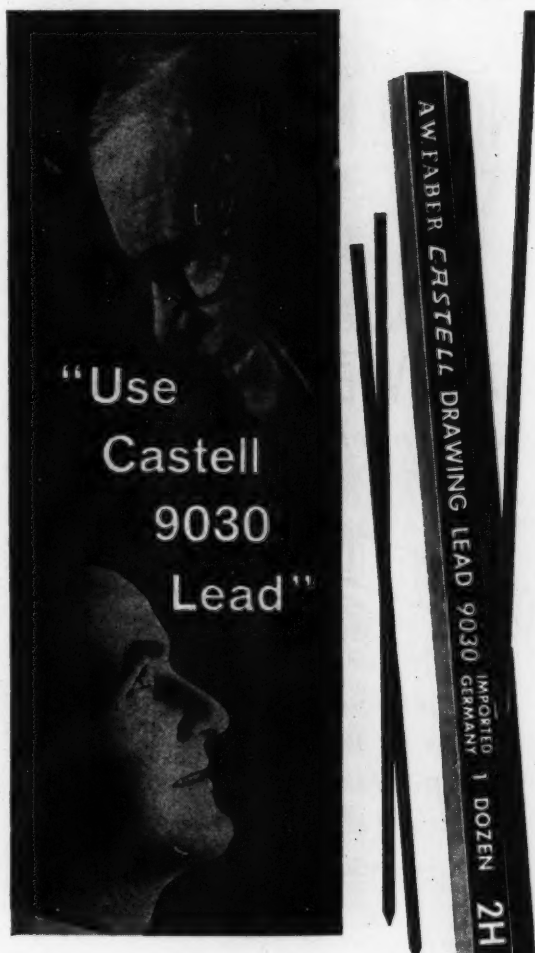
### New Federal Building Slated for Alaska

Working drawings are now under way for the new \$15.7 million post office and court house to be built by GSA in Juneau, Alaska, and are scheduled to be completed by March 1962. Bids will be asked some time after that date.

Architects for the building are *Olsen & Sands* and *Linn A. Forrest*, both of Juneau, and *John Graham and Company* of Seattle.

continued on page 32-20

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## Professional News

continued from page 32-19

### Plane Crash Kills California Architect

Edward N. Chamberlain, Palo Alto architect and former president of the Coast Valleys chapter, A.I.A., was one of the victims of the crash of a plane near the Chicago airport early in September. With him at the time were his wife and four sons, all of whom were killed.

Mr. Chamberlain was a native of New Britain, Conn., and a graduate of the University of Chicago, where he majored in science, and of Yale University where he majored in architecture. He had been in practice in California since 1951, and had opened his own office in 1955. He had just recently been named to the Santa Clara County Planning Commission.

### No Funds Yet for Hawaii Capitol

The Hawaii Legislature, which adjourned last summer without appropriating funds for the handsome new capitol building unveiled before it earlier in the spring, has made no progress in the interim toward finding ways and means of allocating funds for the building. And the controversy over the site for the building is still under way.

A recent statement by the president of the Windward Chamber of Commerce indicates that Windward Hawaii (across the mountains from Honolulu) would still welcome the capitol building. The site offered to the state by Harold L. K. Castle is still available, the president said, although a part of the over-all estate is being negotiated for by a development company. However, 125 acres still are being offered for the Capitol.

### Federal Building Funds Approved

Construction will start this year on the \$18,145,000 Federal office building and courthouse in Denver, according to the General Services Ad-

continued on page 32-23



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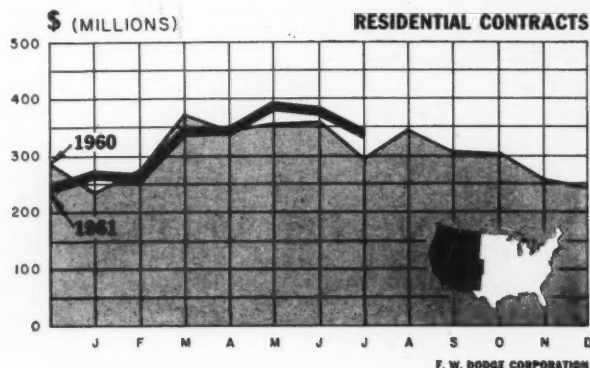
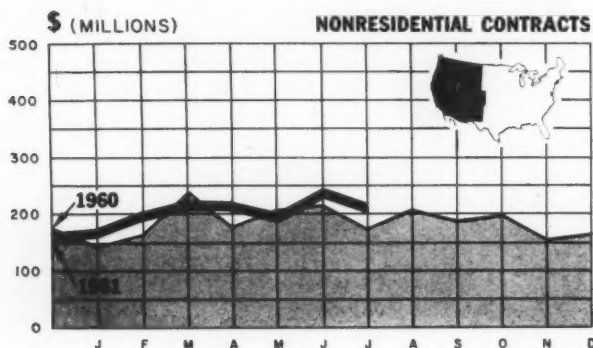
Address

City  Zone  State



# Western Construction Trends

(For analysis of construction trends nationwide, see page 18)



Western construction contracts sank slightly below their year-earlier levels in July, but continued to outshine the national performance. Total awards in the 11 states West of the Rockies amounted to \$719,451,000, just one per cent below July 1960. For the country as a whole, contracts dropped two per cent.

The villain of the piece in the West this time was heavy engineering. Contracts for heavy engineering projects fell 33 per cent from a year ago, mainly as a result of a steep decline in awards for public works.

However, the building sector of new construction in the West did very well in July. Nonresidential building contracts rose 17 per cent to \$205,024,000. This advance was sparked by sharp gains in contracts for schools and hospitals. The largest nonresidential building category, commercial building, edged above

last year, but manufacturing building contracts were down.

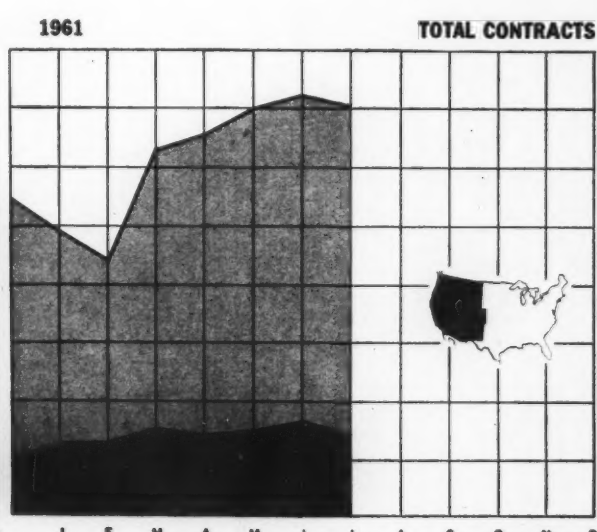
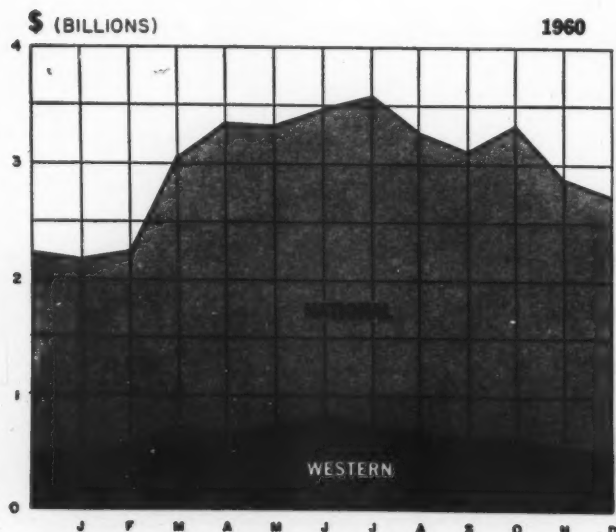
July residential building contracts in the West were valued at \$338,968,000, up 16 per cent from July 1960. Most encouraging was a notable gain in one- and two-family houses, a category which had shown some weakness in prior months. Apartment building continued its strong showing with another substantial increase in contracts over last year. Contracts for apartments in the West during the first seven months of 1961 ran 29 per cent ahead of 1960, which, as a whole, was three per cent above 1959.

The recent vigor in contract letting for Western apartment buildings has occurred in spite of the high rental vacancy rates in the Western states amounting to 10.7 per cent of the rental housing supply during the second quarter of 1961. Actually,

though, the Western rental vacancy rate has declined from a peak of 11.4 per cent in the fourth quarter of 1960, while the national rate has continued to move upward.

Although it is much too early to draw any definite conclusions from this situation, it may mark a step-up in the tempo of immigration to the Western states—the cause of much of the rapid growth in the Western economy in recent years. Apartment building and occupancy trends are, of course, among the first indicators of changes in the rate of growth of the regional population, and are portents of the pace of general business activity as well.

EDWARD A. SPRAGUE,  
Associate Economist  
F. W. Dodge Corporation  
A McGraw-Hill Company



Total contracts include residential, nonresidential, heavy engineering contracts

F. W. DODGE CORPORATION



## Professional News

continued from page 32-20

ministration. The new buildings will be built near the present Post Office and other public buildings in the downtown area.

James Sudler & Associates and Fisher & Davis are architects for the buildings.

The plans for the office building included provisions for a fallout shelter which would cost \$942,000 and would accommodate 8400 persons. Funds for this part of the project were "specifically disallowed" by the House Appropriations Committee, although it was expected that the basic structure for the shelter could be built within the allotted funds for the two new buildings.

### Can Golden Gate Bridge Carry Rapid Transit Trains?

A transit consultant has stated that the Golden Gate Bridge across the entrance to San Francisco Bay could "easily and safely" carry rapid transit trains, proposed as part of a five-county transit system for the Bay Area. He is Carl H. Gronquist, a bridge engineer who has designed a proposed \$16.5 million remodeling of the bridge which, he says, would permit its incorporation in the transit system.

However, Clifford E. Paine, chief designer engineer for the bridge, says that Gronquist's proposal would "whittle away the margin of safety which was built into the structure" and would make it "substandard and structurally uncertain." Further, he says that the concentration of the heavy loads of the trains would cause a drop of eight ft below the navigational clearance required by the War Department; that the originally desired 82,000 psi stress on the cables would require 94,000 psi; and that stiffening incorporated in the bridge in 1952 would have to be realigned.

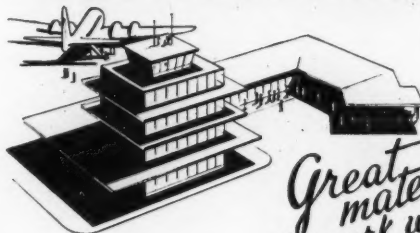
An "impartial panel of the country's finest bridge engineers" may be asked to study the matter and decide whether or not the bridge could safely carry commuter trains.

### East-West Center Plans Advance Toward Construction

The first building in the East-West Center in Honolulu, a theater-auditorium, is expected to be completed and ready for use in the fall of 1962, according to recent reports. Designed by East-West Center Associates (which includes I. M. Pei of New York City, McAuliffe, Young & Associates and Law & Wilson), the building will include a theater designed for presentation of both Oriental and Occidental plays. For Oriental plays, there will be a *hanamichi* or ramp through the audience.

Theater equipment will permit change of scene in minutes, either by use of wagon stages or by automatic winches for raising or lowering scenery. A rehearsal hall backstage can also be used to seat part of a theater-in-the-round audience. The auditorium will seat 610.

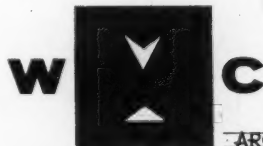
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# Western Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100  
DENVER

LOS ANGELES

PERIOD	RESIDENTIAL		APTS., HOTELS OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete		RESIDENTIAL		APTS., HOTELS OFFICE BLDGS. Brick and Concrete	COMMERCIAL AND FACTORY BLDGS. Brick and Concrete	
	Brick	Frame		Brick and Steel	Brick and Steel	Brick	Frame		Brick and Steel	Brick and Steel
1939	112.0	112.1	116.1	117.8	117.0	97.2	93.6	103.7	104.9	106.2
1948	217.8	218.1	202.7	207.0	206.7	215.9	216.5	205.8	210.0	209.8
1949	215.8	212.9	211.0	215.3	214.6	207.0	203.2	209.9	212.4	210.2
1950	230.0	228.2	218.8	221.3	221.2	224.1	222.8	217.4	219.0	217.5
1951	249.7	246.6	236.5	237.2	238.9	241.0	239.5	235.1	236.9	236.6
1952	253.6	249.4	243.4	245.1	245.6	243.8	241.7	239.8	242.6	241.5
1953	259.6	254.0	255.0	260.9	258.1	250.5	246.5	252.3	258.2	253.3
1954	258.9	252.0	259.1	266.2	263.4	251.0	245.3	257.7	265.7	261.8
1955	266.6	260.9	266.3	273.2	271.7	262.1	256.6	269.3	278.0	273.9
1956	274.9	269.3	275.8	282.3	285.1	272.6	266.7	282.9	292.9	289.3
1957	281.3	272.2	285.4	293.1	296.4	275.4	267.9	292.8	303.3	303.7
1958	282.2	272.0	288.1	295.9	298.8	277.9	286.6	302.6	314.5	316.4
1959	288.7	278.9	295.2	302.9	304.8	288.7	279.1	314.9	326.9	327.6
1960	292.2	282.7	301.3	309.0	310.0	299.8	287.7	329.1	342.7	339.6
May 1961	294.7	284.7	307.4	316.3	311.3	303.0	287.4	340.1	357.3	347.7
June 1961	297.1	286.6	310.8	320.6	313.6	307.6	292.1	343.7	359.8	350.8
July 1961	297.1	286.6	310.8	320.6	313.6	307.6	292.1	343.7	359.8	350.8
% Increase over 1939										
July 1961	165.3	155.7	167.7	172.1	168.0	216.5	212.1	216.2	243.0	230.3

SAN FRANCISCO

SEATTLE

1939	105.6	99.3	117.4	121.9	116.5	104.4	96.7	119.2	125.3	118.7
1948	218.9	216.6	208.3	214.7	211.1	216.3	211.4	211.5	216.6	216.9
1949	213.0	207.1	214.0	219.8	216.1	214.2	203.9	220.7	228.5	225.3
1950	227.0	223.1	222.4	224.5	222.6	224.1	213.6	227.1	234.5	230.3
1951	245.2	240.4	239.6	243.1	243.1	245.1	232.7	247.7	255.8	251.0
1952	250.2	245.0	243.6	248.7	249.6	254.3	239.8	258.8	267.7	263.8
1953	255.2	257.2	256.6	261.0	259.7	254.8	239.0	262.7	273.6	269.5
1954	257.4	249.2	264.1	272.5	267.2	253.3	236.1	266.6	279.1	274.0
1955	268.0	259.0	275.0	284.4	279.6	260.6	243.3	273.7	287.3	282.4
1956	279.0	270.0	288.9	298.6	295.8	273.5	254.0	288.5	303.4	299.0
1957	286.3	274.4	302.9	315.2	310.7	275.6	254.0	298.2	313.1	311.2
1958	289.8	274.9	311.5	326.7	320.8	279.9	256.4	306.0	324.0	320.8
1959	299.2	284.4	322.7	338.1	330.1	291.5	267.8	318.8	336.9	331.8
1960	305.5	288.9	335.3	352.2	342.3	298.9	272.4	330.5	351.2	342.9
May 1961	310.7	290.7	347.1	367.4	353.7	296.2	268.1	335.2	357.3	345.4
June 1961	310.8	292.4	346.9	364.8	352.1	296.2	268.1	335.2	357.3	345.4
July 1961	311.8	293.8	347.4	364.6	351.2	296.2	268.1	335.2	357.3	345.4
% Increase over 1939										
July 1961	195.3	195.9	195.9	199.1	201.4	183.7	177.2	181.2	185.1	191.0

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110  
index for city B = 95  
(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.



## Waste Space

### A Dream Within a Dream

One of architecture's thorniest dilemmas, and most controversial subjects—whether or not to tear down and rebuild the Palace of Fine Arts, the Maybeck building for the 1915 San Francisco Exposition—has at long last been approached with the hard facts of feasibility. It's official at last—what knowing architects have said for decades: that it would cost a fortune to rebuild the Palace.

The figures astounded laymen and those architects who had thrown their support to the reconstructionists, but they were no surprise to the realists who had clear-headedly appraised the requirements for making the buildings safe and—since this was part and parcel of the proposal for rebuilding them—usable. It will cost \$12,815,980, \$7 million more than the funds available.

San Franciscans approved a bond issue last November for \$1.8 million after millionaire industrialist Walter Johnson had given the city \$2 million to "restore" the Palace and the State had agreed to allocate \$2 million of its park funds to the project. The \$5.8 million fund thus garnered for the job was lightheartedly taken as enough to cover razing the rotunda, colonnade and all of the exhibition structure except its light steel frame, and rebuilding in all of their detail these three structures.

Now that the facts are out, however, the awful error in estimate is being covered by saying that the cost of reproducing the elaborate ornament on the rotunda and colonnade was greatly increased by the fact that it would have to be done in cast stone, instead of concrete. This alone would cost \$5 million, it now appears. As a matter of fact, the present figures indicate that it would not be possible to reproduce the rotunda and colonnade for the \$5.8 million available. And it wouldn't be possible, either, to rebuild for that money the exhibition hall and provide the various community facilities (restaurants, theaters, studios, offices) which were proposed at the time of the bond issue.

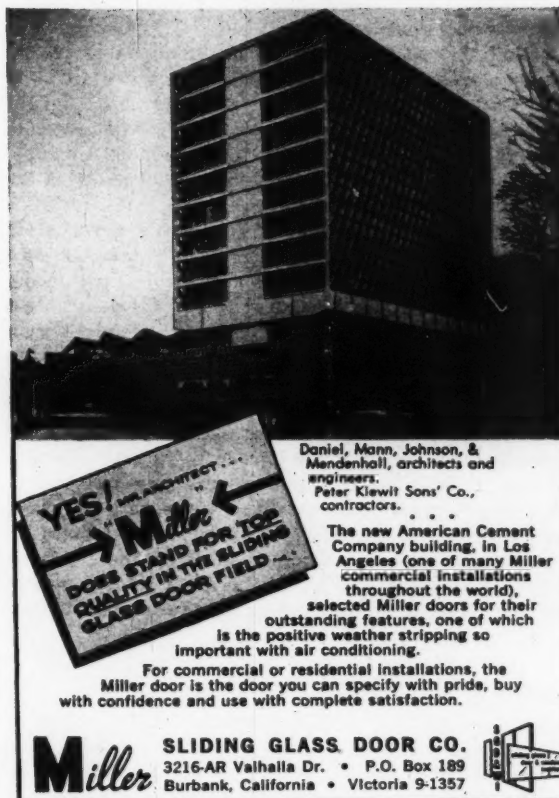
Here is the breakdown, based on complete and careful analysis by architects Welton Becket & Associates and William G. Merchant & Associates:

Rotunda: \$3,552,980; colonnade, \$2,784,800; main building, \$3,304,000; interior remodeling, \$2,846,000; landscaping, \$328,040.

A great deal of sentimental nostalgia went into the original estimates, some bandied blithely about by architects, some picked from the blue by a group known as the Palace of Fine Arts League, some combining both. Alas, there were reputable architects among both groups. And in the center of the blowing winds, the Northern California chapter, A.I.A., dared take no stand because it was split right down the middle as to how it stood in regard to the philosophical question of rebuilding the Palace!

The French have a saying which in their language is a pun—but one with a punch: *tous songes sont mensonges*. All dreams are lies. The dream that such a building as the Palace could be rebuilt within today's economy on an outmoded estimate was not only that. It was a dream within a dream—and it turned out to be a nightmare.

E.K.T.



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### Time to Re-Tread

September and October are the months for Western professional conventions. Already past are the conferences of the Western Mountain and Northwest regions, A.I.A., held respectively September 21-23 in Reno and September 30-October 4 in Honolulu, and the Structural Engineers Association of California which met October 5-7 in Sacramento.

Still to come is the West's largest such convention, the California Council, A.I.A., which meets October 18-23 in Coronado. Keynote will be the newly appointed dean of U.S.C.'s School of Architecture, Samuel T. Hurst. Other speakers include William Zeckendorf, real estate developer; Detroit director of planning, Charles A. Blessing, A.I.A.; Carl Feiss, planning and urban renewal consultant, and chairman of A.I.A.'s national Community Planning Committee; and Guillermo Rossell, Mexican architect who is chairman of the Border Town Planning Commission. Samuel Wood Hamill, supervising architect for San Diego's multi-million-dollar Center City redevelopment project, will be moderator for panel discussions.

A special session is being planned by the Producers Council in cooperation with the C.C.A.I.A., at which James Stirling, English writer and architectural educator will speak.

**ADDENDUM:** Moritz Kundig of Spokane, Wash., was associate architect, with McClure and Adkison, for the Unitarian Church of Spokane (August, page 32-4), which won an award of merit in the 1961 Spokane Chapter, A.I.A., awards program.

### Calendar of Western Events

- **OCTOBER 13:** American Association of State Highway Officials, national convention, Denver
- **OCTOBER 15-18:** California State Hotel Association, 50th annual convention, Santa Barbara Biltmore, Santa Barbara, Calif.
- **OCTOBER 15-19:** Prestressed Concrete Institute, national convention, Cosmopolitan and Brown Hotels, Denver
- **CLOSING OCTOBER 15:** "American Business and the Arts," exhibition, San Francisco Museum of Art, San Francisco
- **OCTOBER 18-22:** California Council, A.I.A., annual convention, Hotel del Coronado, Coronado, Calif.
- **OCTOBER 19-22:** California Council of Landscape Architects, state convention, El Dorado Motel, Sacramento, Calif.
- **NOVEMBER 1-3:** Building Contractors Association, 38th convention, Hotel del Coronado, Coronado, Calif.
- **DECEMBER 1-3:** Associated General Contractors of America, Northern California Section, annual meeting, Sheraton Palace Hotel, San Francisco
- **CLOSING DECEMBER 31:** Folk Art of Lapland, Los Angeles County Museum, Exposition Park, Los Angeles

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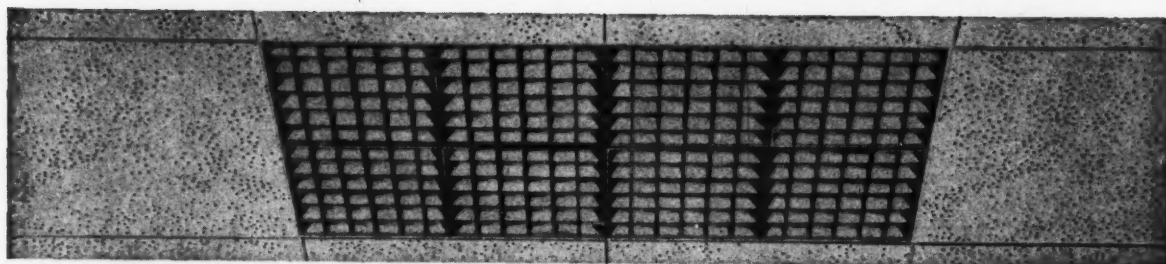
a Architectural File (green)  
ic Industrial Construction (blue)  
lc Light Construction File (yellow)

Page numbers of manufacturers' advertising elsewhere in this issue shown in *italics*

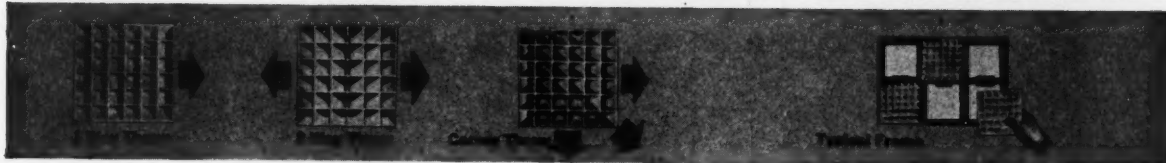
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American Cancer Society .....	32-20
Boeckh & Associates, E. H. ....	32-26
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A Fluor Products Company .....	32-15
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Stewart & Stevenson Services, Inc. .	32-20
Western Porcelain Enamel Council ..	32-23

Western advertising offices: **LOS ANGELES**, Wettstein, Nowell & Johnson, Inc., 672 S. Lafayette Park Pl.; **PORTLAND**, Wettstein, Nowell & Johnson, Inc., 921 S. W. Washington St.; **SAN FRANCISCO**, Wettstein, Nowell & Johnson, Inc., 417 Market St.





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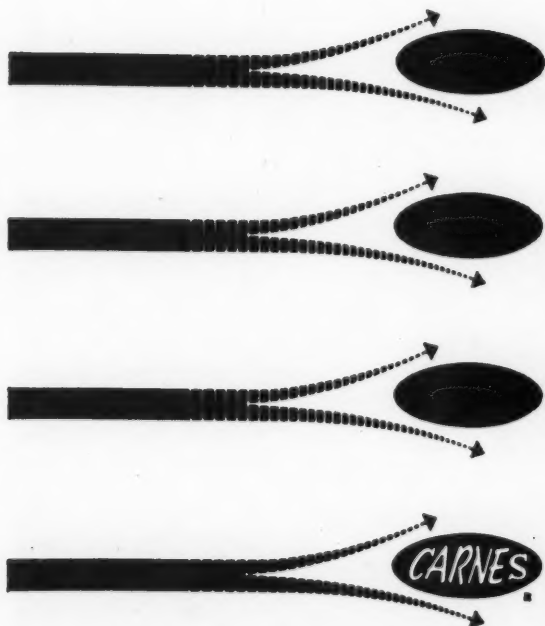
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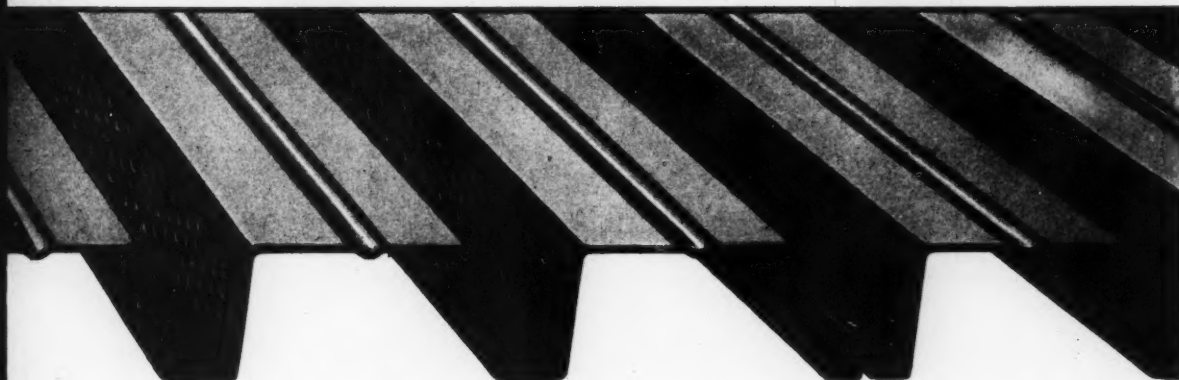
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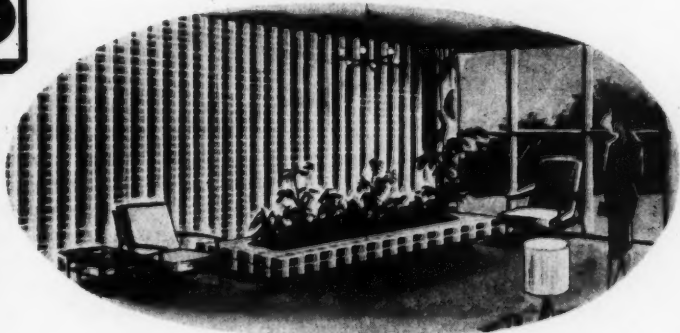
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## Required Reading

St. Peter's, under construction, 1560  
—from *The Horizon Book of the Renaissance*



### Space for Working In

**OFFICE BUILDINGS.** *An architectural Record Book.* F. W. Dodge Corporation, 119 W. 40th St., New York 18. 248 pp., illus. \$9.75.

This is a collection of articles, and case histories, of office buildings published in *ARCHITECTURAL RECORD* over the past five or six years. For convenience of organization, the buildings have been sorted into sections covering high-rise and low-rise structures, although, as *RECORD* editor William Dudley Hunt Jr. points out in his introduction, design principles applied to one size may have equal implications for the other.

A third section, on engineering, comprises material on automation, acoustics, air conditioning and data processing facilities.

### For Our Universities

**MODERN PHYSICS BUILDINGS:** *Design and Function.* By R. Ronald Palmer and William Maxwell Rice. Reinhold Publishing Corp., 430 Park Ave., New York 22, 324 pp., illus. \$13.50.

In 1958, a survey conducted by the American Association of Physics Teachers showed that 200 university physics departments planned building projects in the near future to fill

the needs of increasing enrollment in both beginning and advanced classes. With the aid of a grant from Educational Facilities Laboratories, Mr. Palmer, chairman of the physics department at Beloit, and Mr. Rice, an architect, began to look for answers to some of the questions these physics departments would be asking.

When the authors say that "special problems arise because a physics building is more complex than most other college buildings," they appear to be understating the case, seeing that physics buildings must somehow accommodate classrooms, conference rooms, libraries, shops, student labs and research labs—the future requirements and uses of the last being difficult to predict.

After several chapters broadly defining the needs of college physics departments, the authors add individual chapters on floor plans, lecture rooms, classrooms, teaching labs, research labs, offices and libraries. All of these chapters are illustrated with several examples of solutions found in existing buildings.

The study should be helpful in designing physics buildings, but will probably have its greatest utility for both administrators and architects in the programming stage.

The final chapter is a discussion of the requirements of high school physics laboratories.

### A Golden Age in Color

**THE HORIZON BOOK OF THE RENAISSANCE.** *Horizon*, 551 Fifth Ave., New York 17. 431 pp., illus. \$17.50.

*Horizon*, the magazine that is almost a book, has gone all the way in this enormous compendium of Renaissance art and history. Most striking are the numerous and superbly reproduced illustrations, chosen for their value both as art and history.

The text, written by the editors and by J. H. Plumb, is augmented by brief biographies of such Renaissance noteworthies as Leonardo, Michelangelo, Machiavelli and Lorenzo de' Medici. The contents cover all major areas of Renaissance culture—art, scholarship, religion, diplomacy, war—with the single exception, alas, of architecture. Even Michelangelo's biography leaves him before he turned architect.

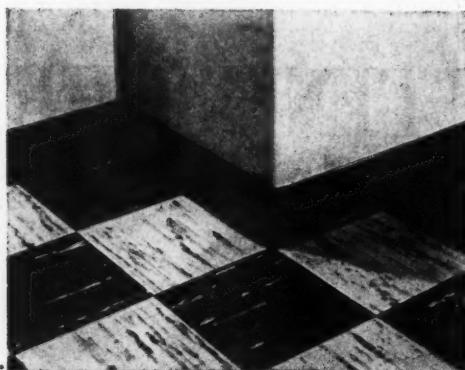
### The Building Team

**ARCHITECT AND PATRON.** By Frank Jenkins. Oxford University Press, 417 Fifth Ave., New York 16. 254 pp., illus. \$6.50.

Mr. Jenkins's subtitle, "A survey of professional relations and practice in England from the 16th century to  
*continued on page 47*



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1.



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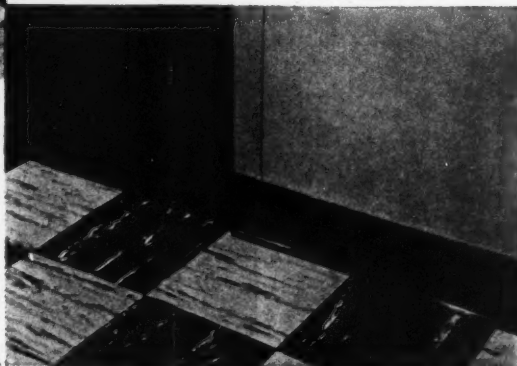
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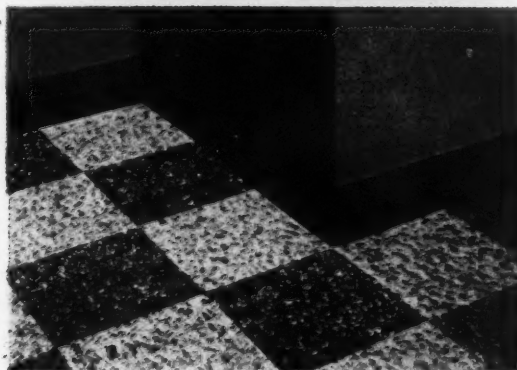
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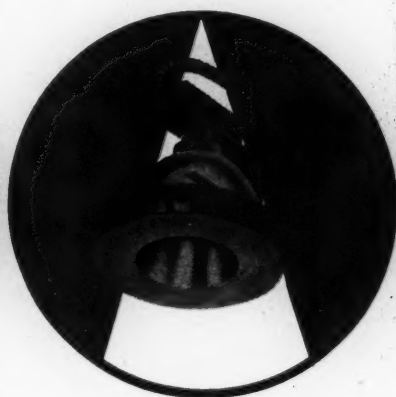


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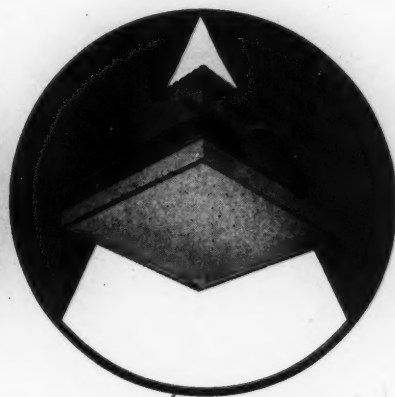
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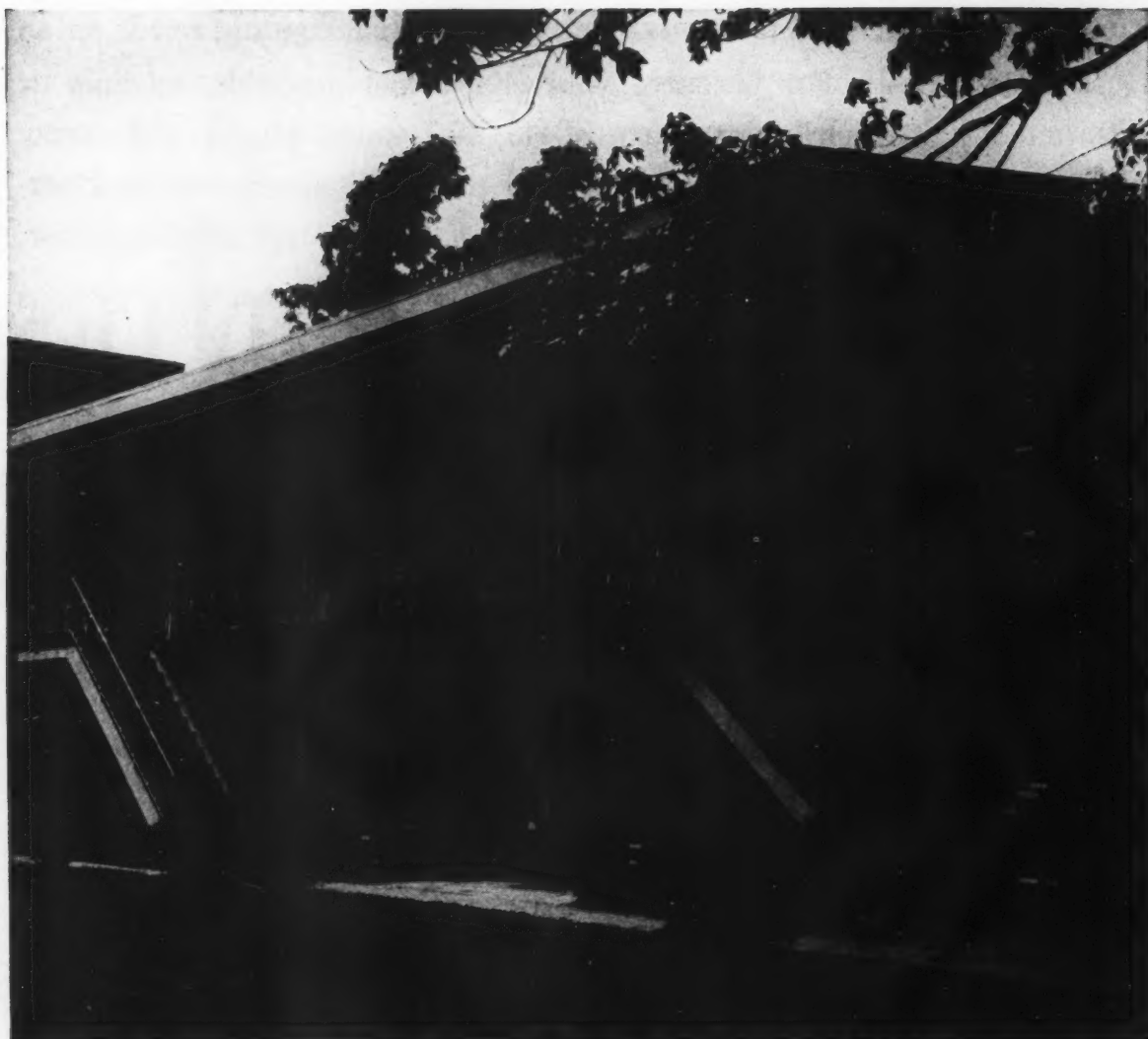
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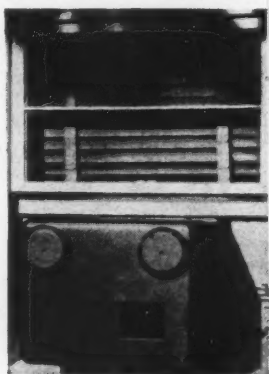
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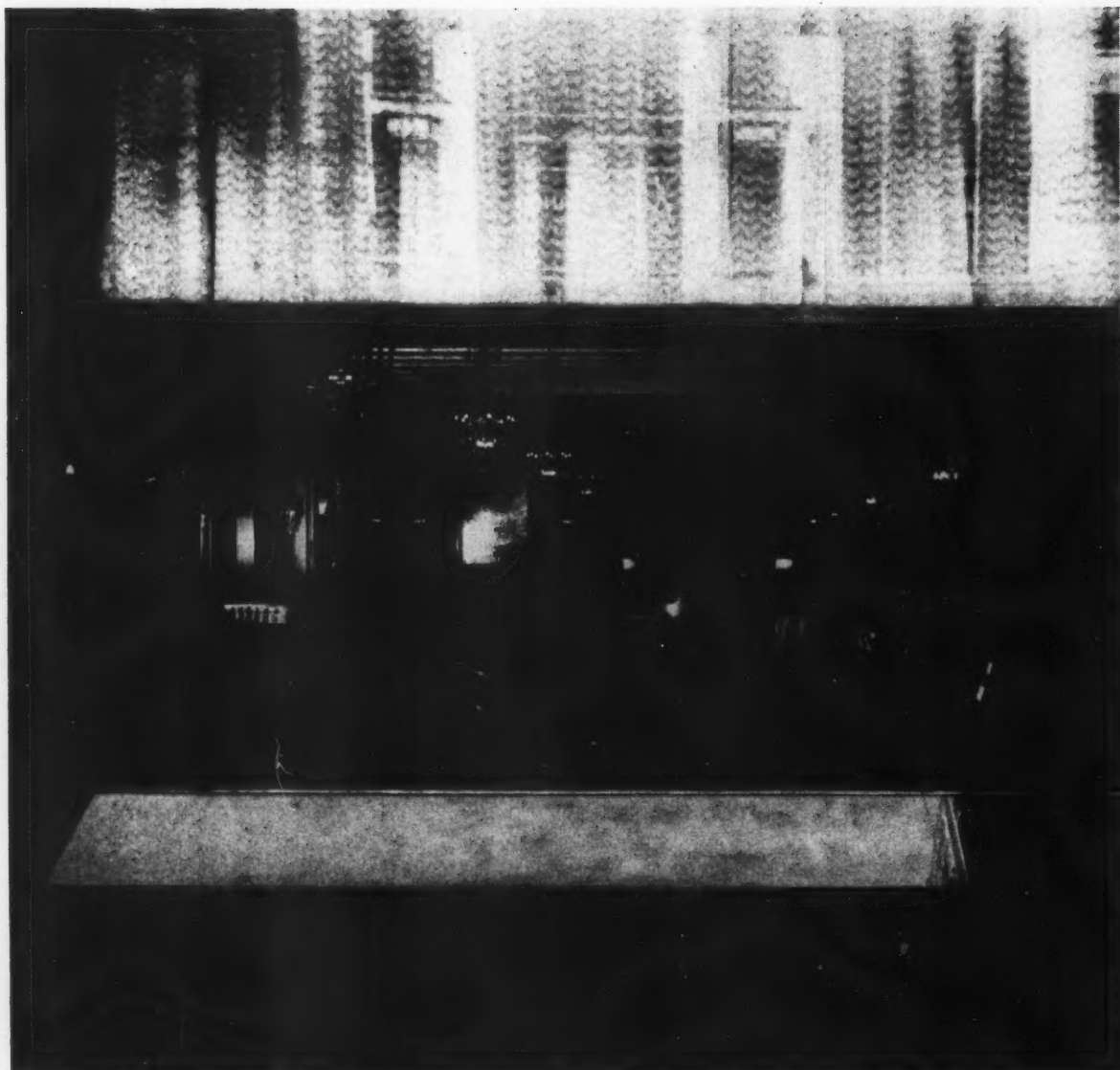
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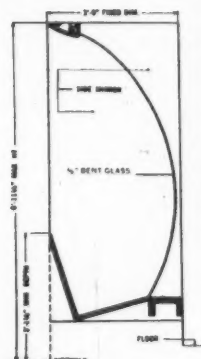
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CERAMIC

tile

## Required Reading

continued from page 38

the present day," is more accurate (though admittedly less graceful) than *Architect and Patron*. The author traces the relations of the architect, his client and the builder as they developed from the earlier simple and flexible—one might almost say amateur—proceedings to today's complex, formal and highly professional practice. This development, Mr. Jenkins indicates, was influenced not only by matters of business, but also by considerations of taste, training and dominant building types (from fortified castles to country villas to council schools).

The author has supported his thesis with thorough, even painstaking, documentation.

### Medicine's Headaches

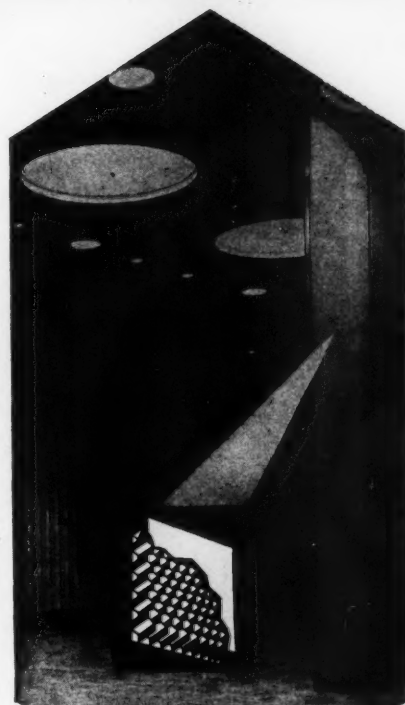
HOSPITALS, DOCTORS AND DOLLARS. By Robert M. Cunningham Jr. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 275 pp. \$6.95.

To most people, with the likely exception of hospital administrators, it would seem that hospital administration is a most unpromising subject for a readable book. Mr. Cunningham, however, is a writer who can put life even into, say, the financial troubles of Blue Cross.

Architects engaged in hospital design should enjoy reading about hospitals from this viewpoint, and may indeed already have read some of these selections in *The Modern Hospital*. And they may find helpful Mr. Cunningham's suggestions for hospital design (e.g., "double the elevators"), and Frank Lloyd Wright's dicta on the same subject (e.g., "sick people should never be allowed to see sick people").

Strictly for diversion, Mr. Cunningham has included a few biographical sketches, ranging from a faintly eulogistic profile of the A.M.A.'s redoubtable Morris Fishbein to a somewhat less eulogistic piece on one Bradford Dorr, a thoroughly reprehensible quack whom Mr. Cunningham invests with wholly undeserved charm.

continued on page 60



UNION  
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FOLDING  
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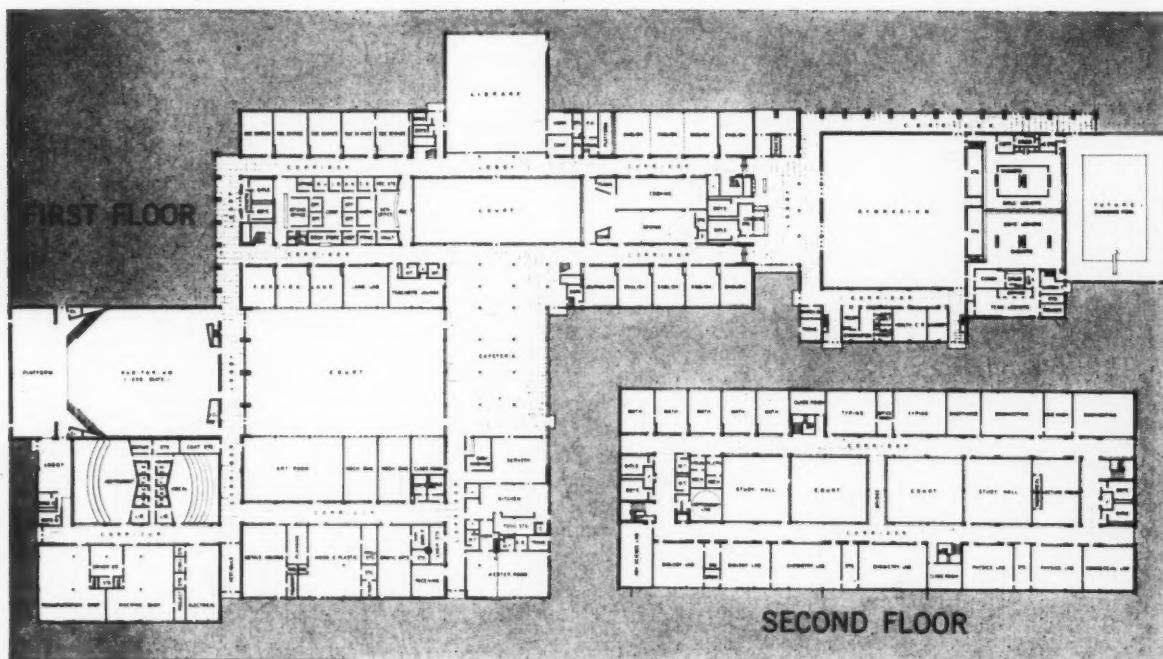
Speed and simplify construction of king-size folding partitions with kraft paper HONEYCOMB sandwich cores. And save money. Light weight lowers freight charges—assures speedy handling and smoother operation. Durable HONEYCOMB cores also keep finishing operations and maintenance costs at a minimum. And they can be bonded to almost any facing material.

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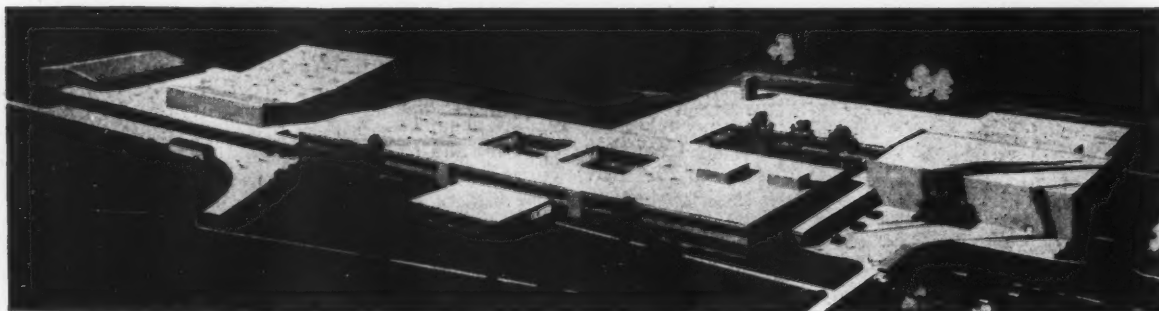




**AT PARMA**... the size and scope of the new Valley Forge High School put special emphasis on the need for an efficient Time Control and Program system, free of operational and maintenance problems. This led to the selection of Stromberg timing. Dependably correct clocks and signals are assured by the precision Master Time Control. This modern time system operates from

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#### PLANNING THE NEW SCHOOL

A population explosion at Parma, Ohio completely overtaxed secondary school facilities. Rather than expand the old school, construction of the new Valley Forge High School was started in May of 1960 and scheduled for completion in advance of the school year beginning September 1961 at a completed cost of \$4,000,000. The new structures — containing 70 classrooms, adequate library, science, language, shop and music facilities, as well as an ample auditorium, cafeteria and gymnasium — is planned to accommodate 2,000 students. Despite these impressive new facilities, plans are now being made for a third secondary school.

The Parma Public Schools, Mr. Paul W. Briggs, Superintendent — were advised in their choice and installation of Time Controls by:

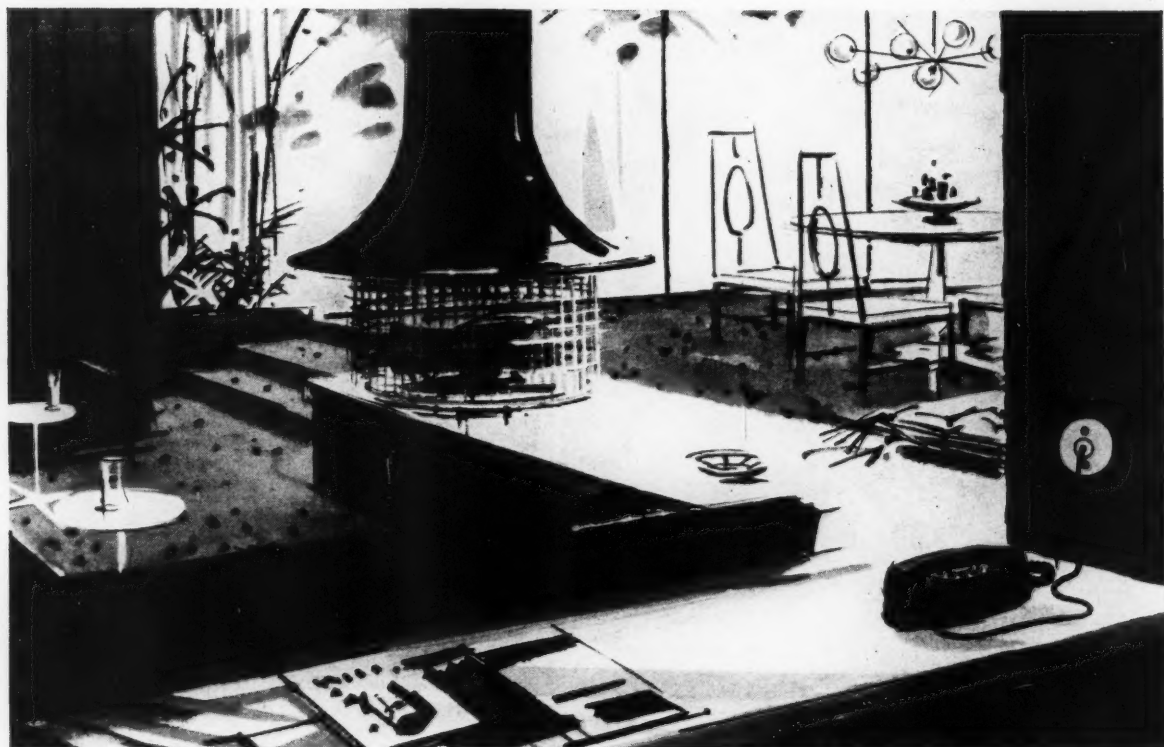
*Fulton, Dela Motte, Larson, Nassau & Associates—Architects*  
*Mr. Vincent A. Lombardi — Electrical Engineer*  
*The Doan Electric Company — Electrical Contractor*

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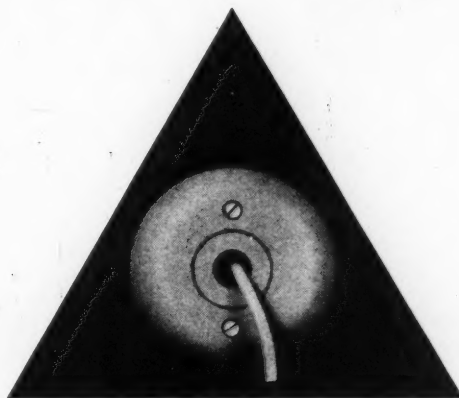




For details of home installations, see Sweet's Light Construction File, 11c/Be. ▲

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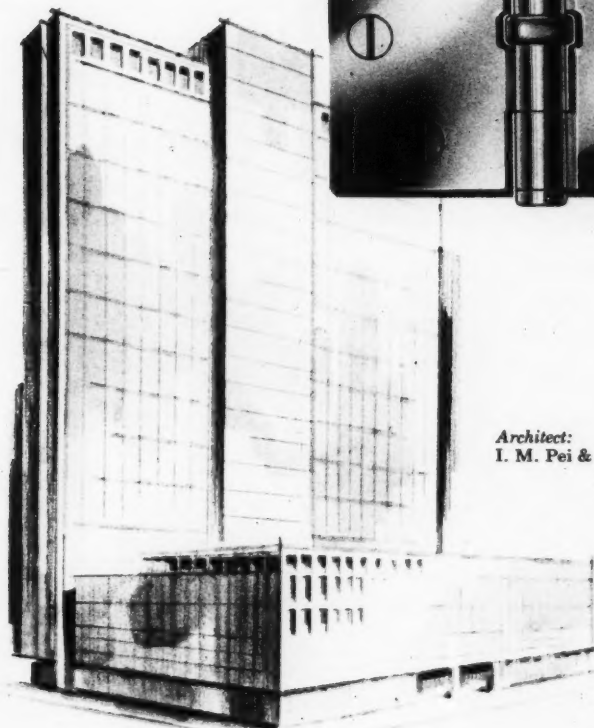
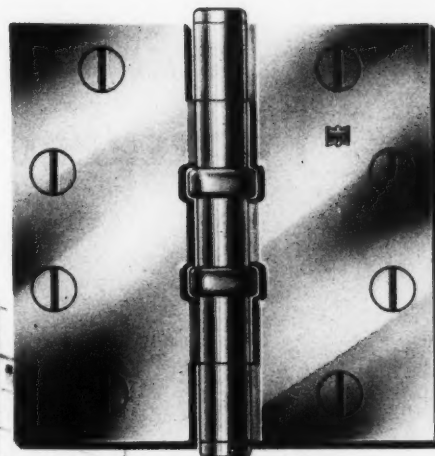


American Falls, Niagara Falls, New York,  
with Canadian Horseshoe Falls in distance.

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Architect:  
I. M. Pei & Associates

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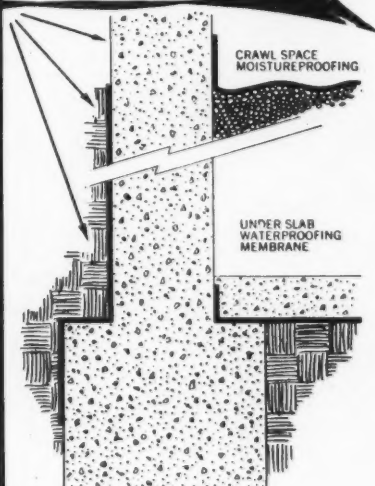
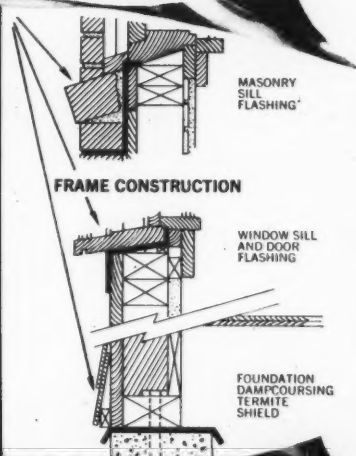
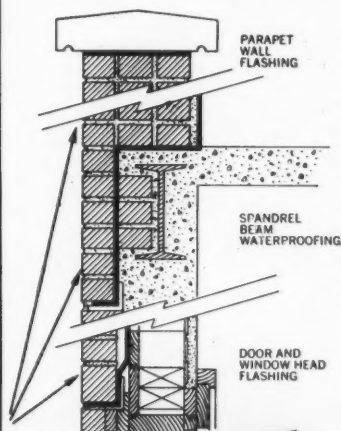


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# Robert A. Little designs for Open World apartment living

Urban revitalization, and the desire of many exurbanites to move back to the city, has placed new emphasis on apartment-house design. These people are used to spaciousness, sunlight and a view of the open world around them. They want city conveniences, but don't want to be closed in.

L·O·F commissioned Mr. Little, AIA of Robert A. Little & George F. Dalton & Associates, Cleveland, to experiment with apartment-house design to determine how L·O·F glass could help meet these requirements. His suggestions are both delightful and practical, as you will discover by studying his notes and rough sketches on this and following pages.

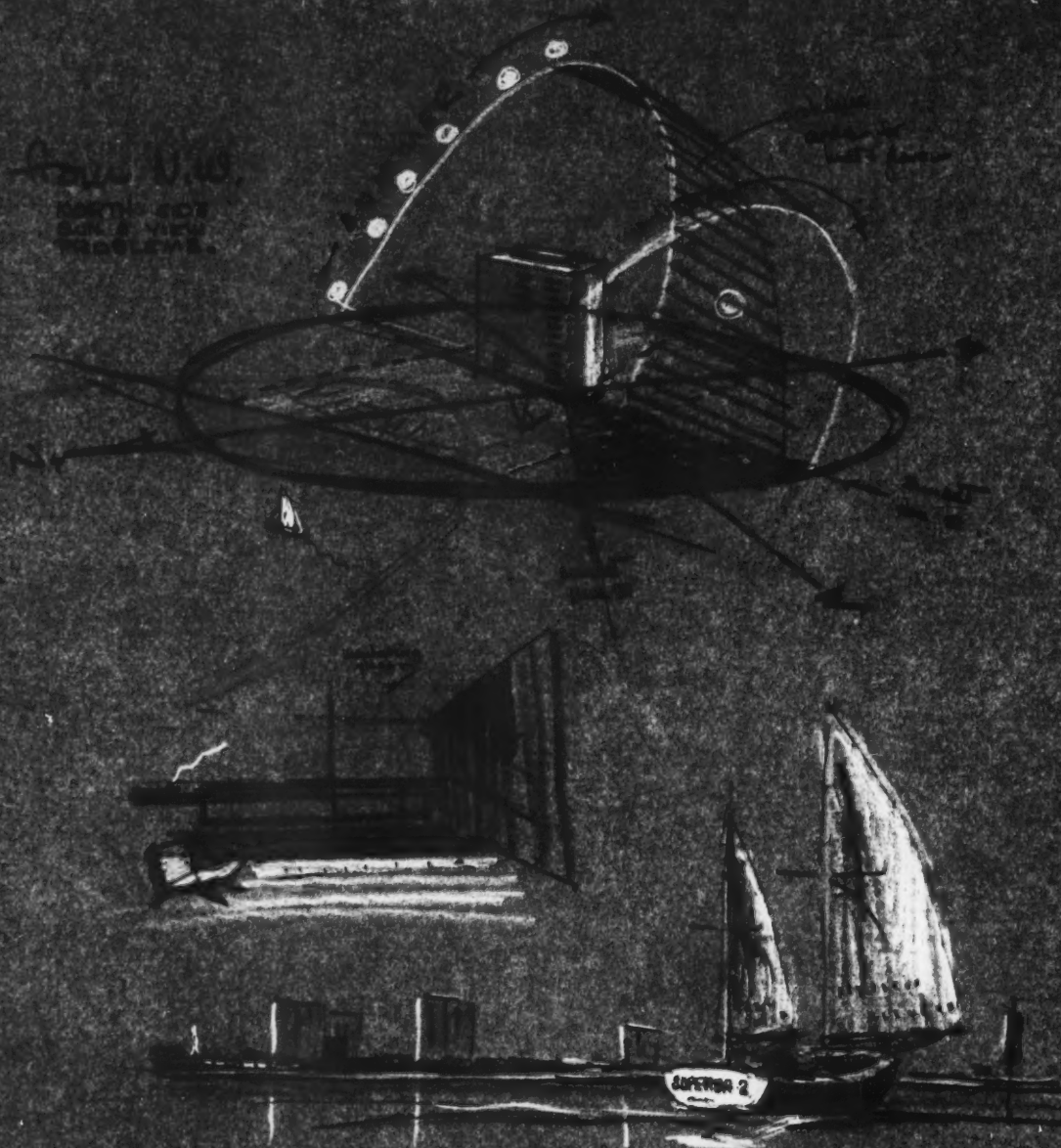
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Toledo 1, Ohio

**FIRST SKETCHES** consider the site on the south shore of Lake Erie in Cleveland. Sun and view angles, traffic, and land contours are basic factors affecting design. A schematic apartment plan and building form begin to emerge. Sketch of lounge shows view through glass wall to the lake. Low afternoon summer sun suggests L·O·F Heat Absorbing or *Parallel-O-Grey*® polished plate glass.

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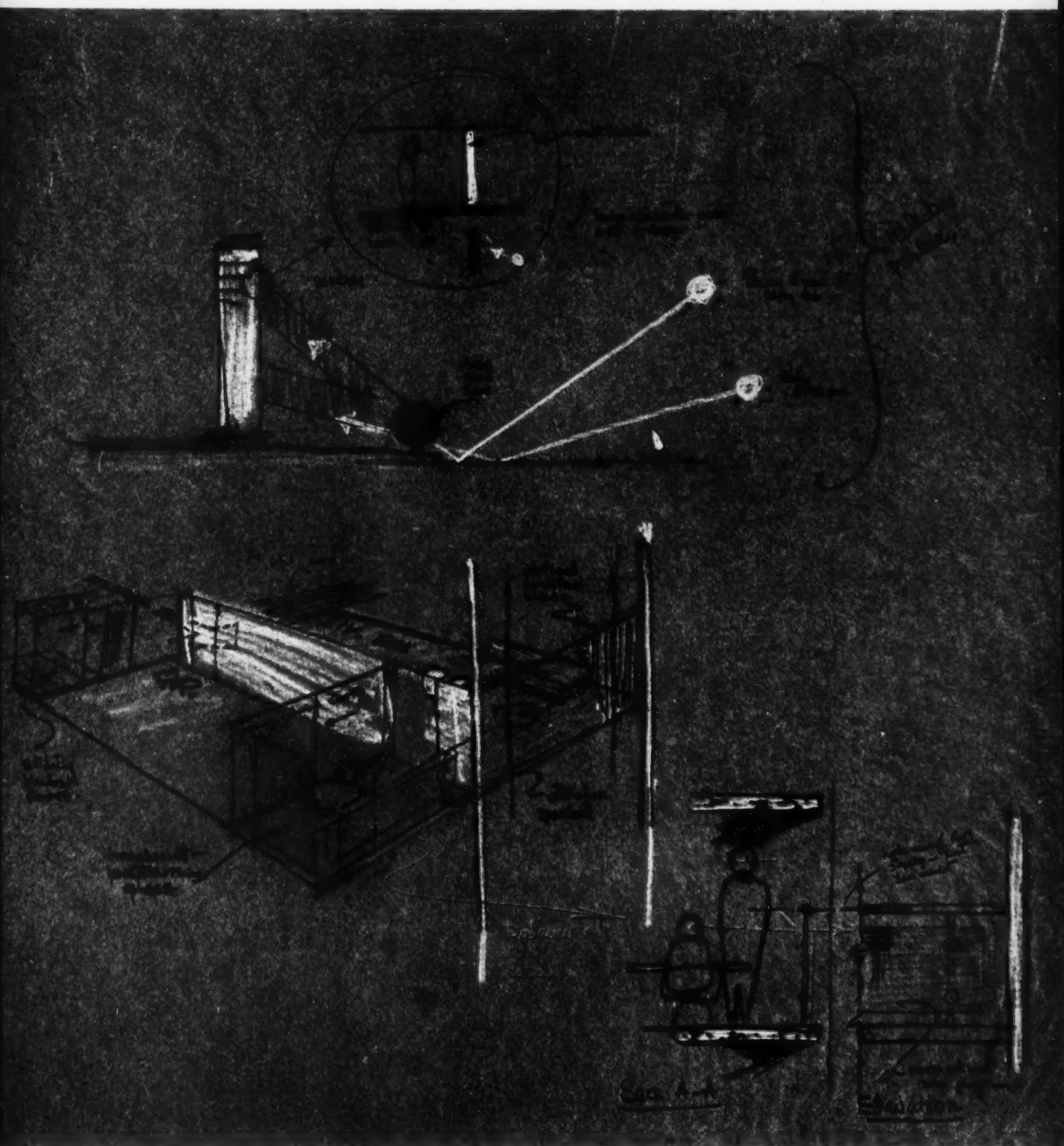


DETAILED PROBLEMS of sun control . . . heating and air-conditioning economies . . . and views at different times of the year are studied. The high-rise buildings are planned with broad expanses of *Thermopane*® insulating glass (with grey plate as outer pane for windows and sliding glass doors) on north and south exposures; narrow, solid walls face the east and west.

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COMPOSITE AIR VIEW shows high-rise apartments looking across site to lake. Two-story terrace houses with individual walled gardens are in the foreground. Study of glass towers seen from the water considers skyline of project as part of cityscape. Reflections of sky and lake are uninterrupted in the complete glass face of Vitrolux® polished plate glass spandrels and windows.

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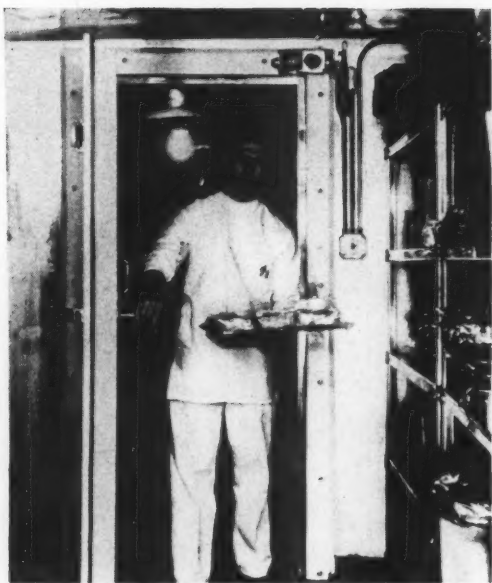
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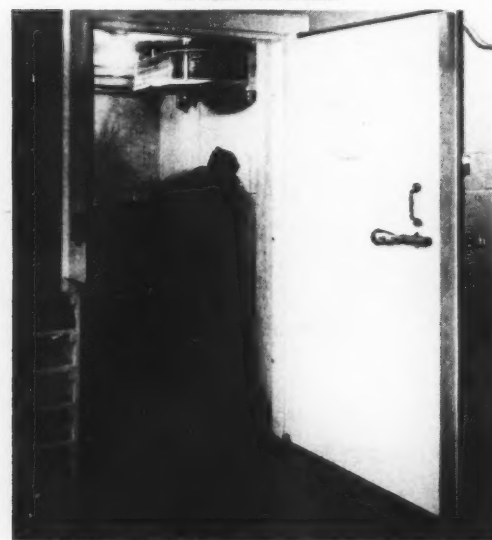




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## Required Reading

continued from page 47

### Design in Early Virginia

THE EIGHTEENTH-CENTURY HOUSES OF WILLIAMSBURG. *An Architectural History.* By Marcus Whiffen. Colonial Williamsburg, Inc., Williamsburg, Va.; dist. by Holt, Rinehart and Winston, Inc., 383 Madison Ave., New York 17. 223 pp., illus. \$10.

This study is divided into two sections. The first contains material on construction methods, materials and tools, and on design sources and theories (as far as these last can be reconstructed). The second section, intended both as history and as a guide to the Colonial houses at Williamsburg, gives rather detailed descriptions of the originals as well as some information on their restoration.

The illustrations include plans, drawings, and photographs (before-and-after, in some cases) of the houses, their interiors, and framing details.

### Politics and Building

POLITICAL INFLUENCE. By Edward C. Banfield. *The Free Press of Glencoe, Inc., a Division of the Crowell-Collier Publishing Co., 60 Fifth Ave., New York 11.* 354 pp.

Superficially, this study, undertaken by a professor of government, is not related to architecture. Ultimately, it is not so related, either. But in the middle ground—well, four of the six political case histories given are directly, or at least intimately, related to building: the Branch Hospital, the Urban Renewal Project, the Branch Campus and the Exhibition Hall.

Mr. Banfield, looking at the community of Chicago, has attempted to answer speculations about who makes political decisions, and why. Architects who are already members of decision-making cliques (and very often architects are) will not be astonished by the C.P. Snow-like complexities of political influence. For architects peripherally involved, as yet, in community (and therefore political) matters, Mr. Banfield's treatise should prove enlightening—not to mention entertaining.



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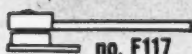
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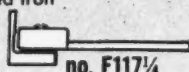


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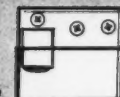


no. F117 1/4

**TOP PIVOTS:**  
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no. F280  
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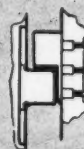


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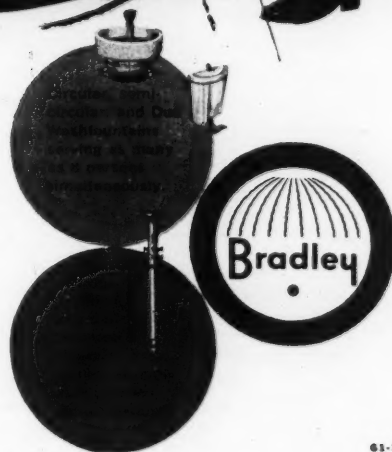
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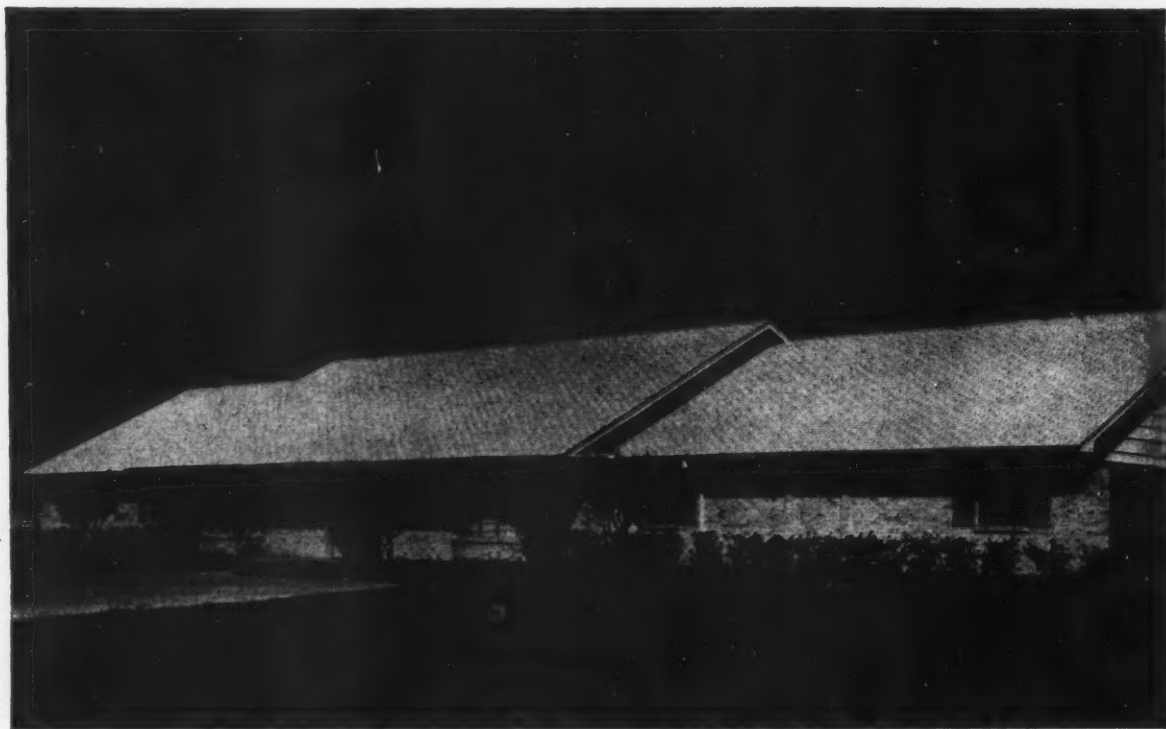
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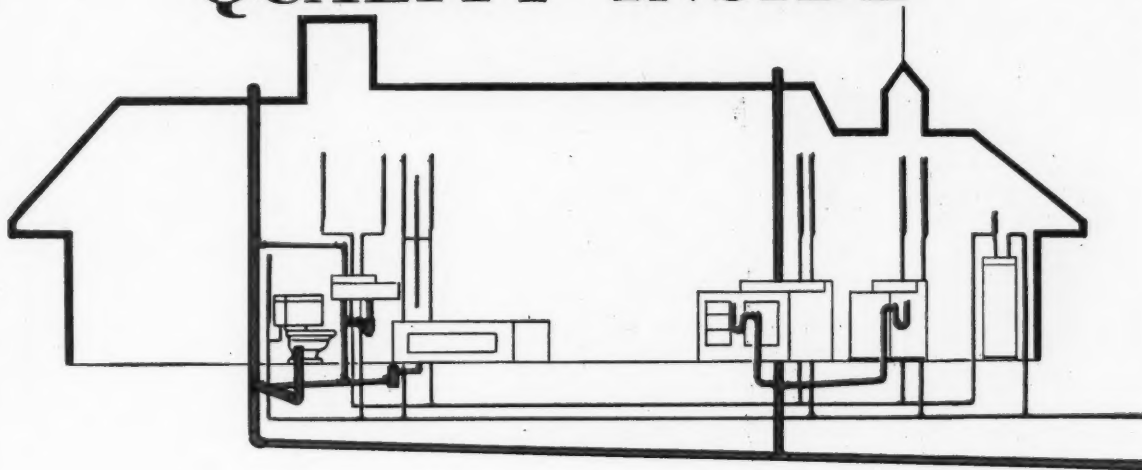
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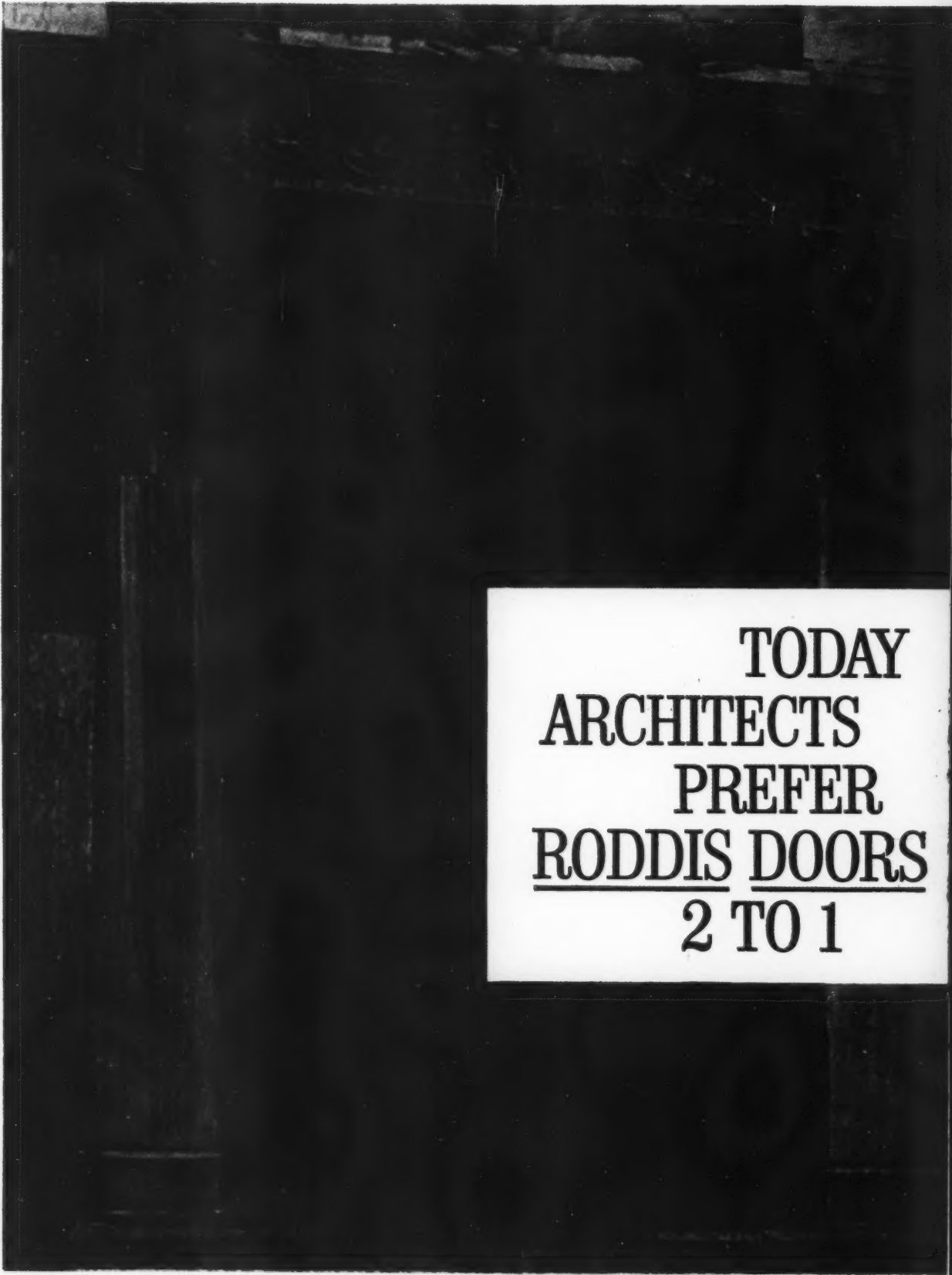
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This unique wedding of art and science has helped make Roddis one of the most respected names in doors among America's architects. Their trust is expressed in the result of a recent independent survey which reveals: *architects prefer Roddis Doors 2 to 1 over the next leading brand.*

For technical details, see Sweet's, or write direct for our new comprehensive catalog. Weyerhaeuser Company, Box B1, Tacoma, Washington.

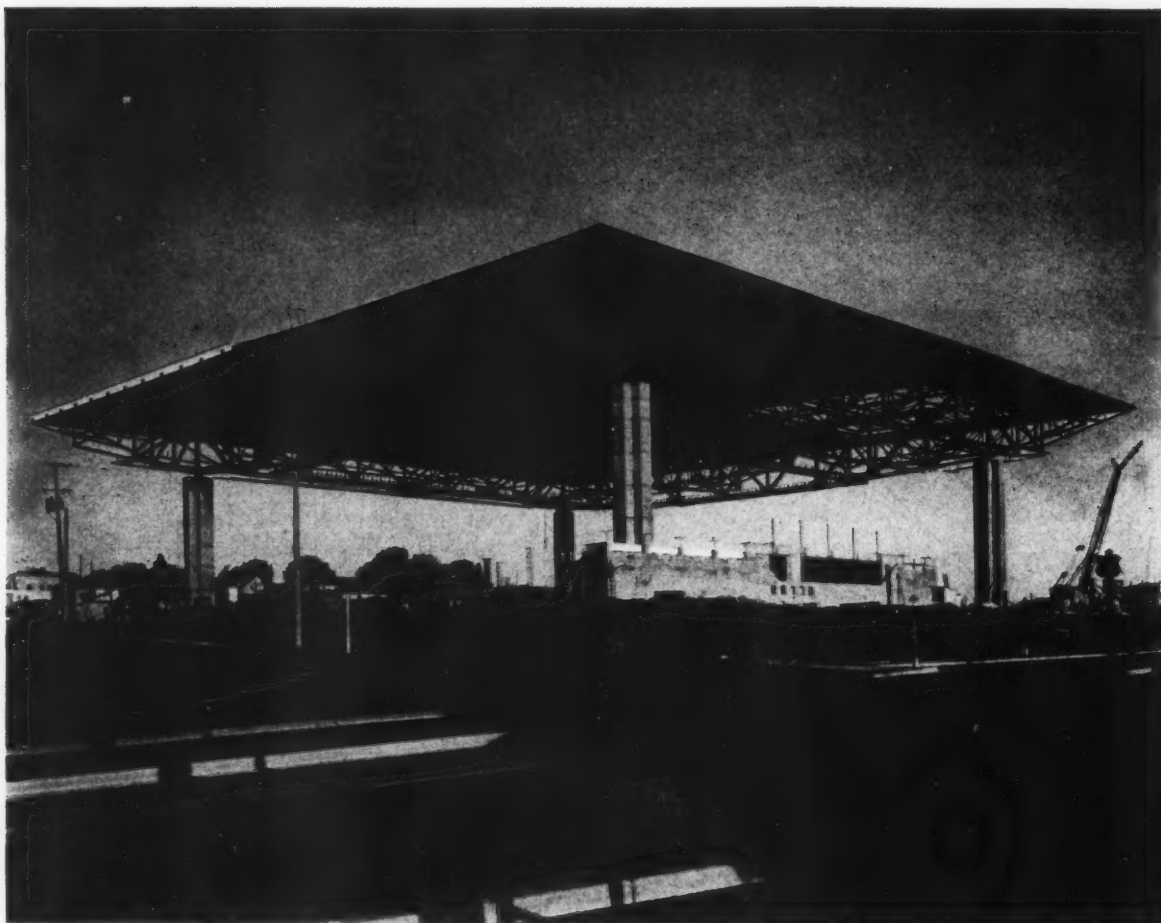


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Illumination  
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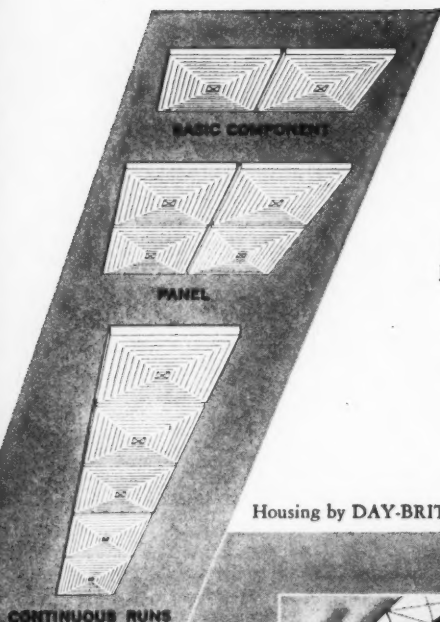
Lighting Authorities Since 1898

342 Madison Ave., New York 17, N. Y.

THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 18, ONT.



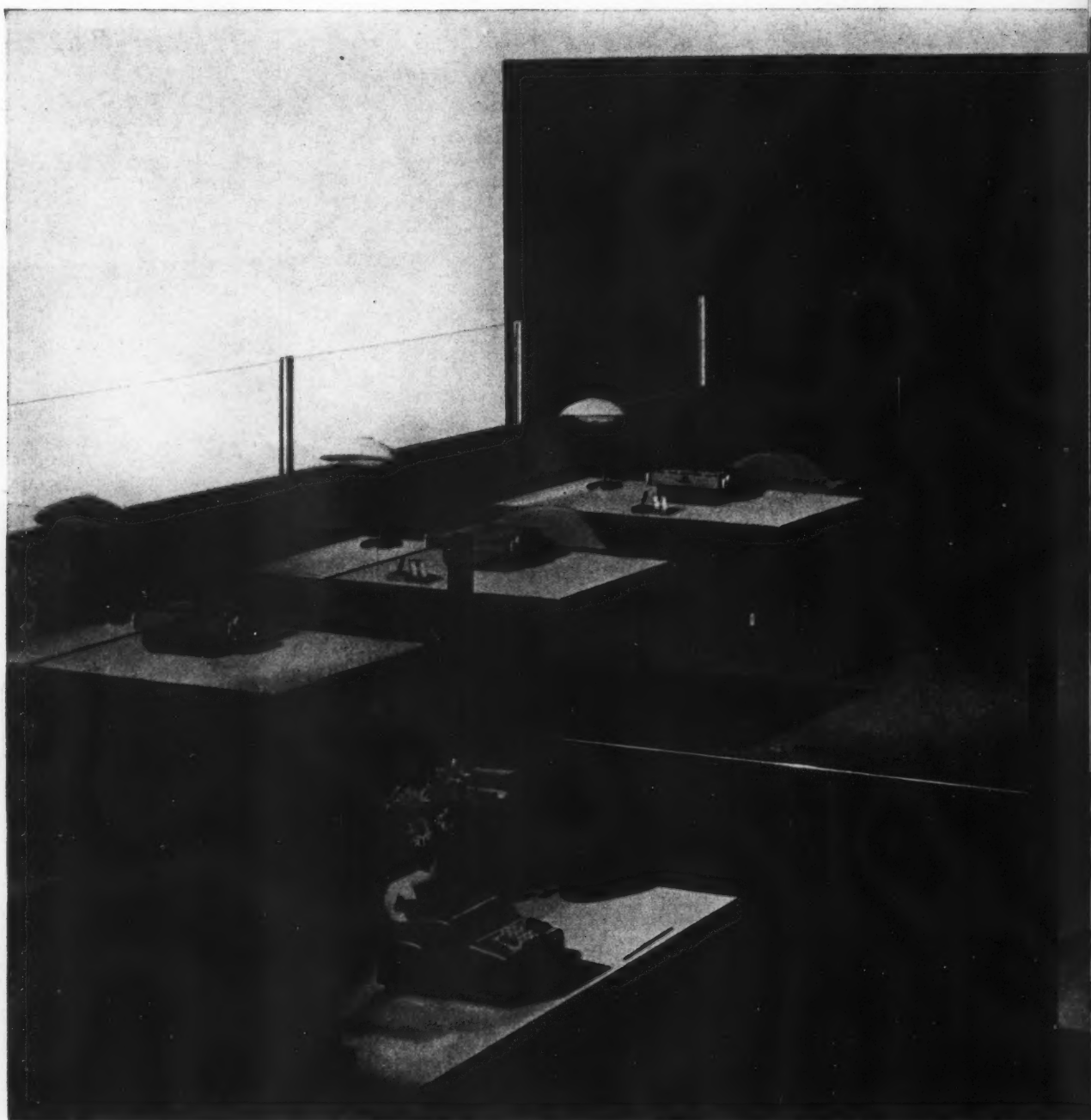
Housing by DAY-BRITE



For Every Type of Commercial and Institutional Lighting







## Design unlimited with new J-M *low* walls and J-M *high* walls

These new J-M movable walls accept an unlimited variety of interesting finishes. Cover them with a marbled pattern, as shown above. Finish them with one of the many new vinyl fabrics. Paint them in bright colors or pastel tones. Veneer them with wood. Apply mosaic tile or a bas-relief.

Or have the asbestos-cement facings integrally colored, a treatment available on special order.

Besides their unusual decorative adaptability, these walls offer many





other important advantages. They go up fast. They are only  $1\frac{3}{4}$ " thick, yet they are sturdy in appearance and sturdy in service. They can be easily and quickly moved, re-using every piece of material. They have an incombustible core. They have asbestos sheet facings. They have steel framing. They meet most fire codes.

J-M High Wall panels fit into metal floor and ceiling channels. Base and cornice snap on, to complete the wall in a matter of minutes.

J-M Low Walls have slotted panel frames that engage hooks on the steel posts. Low Walls not only make efficient space dividers, but also can be used to form such special enclosures as the telephone booth you see above.

For the quickest way to get more in-

formation about these new walls, take the advice of the sign in the telephone booth: call your nearest J-M Representative. Or write to Johns-Manville, Box 158, Dept. AR-10, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable: Johnmanvil.

**JOHNS-MANVILLE**  
MOVABLE WALLS





# RUGGED SIMPLICITY

*...one of the many features of the first high-velocity induction units with built-in bypass control!*

Here is a breakthrough in air conditioning of significance to all who design or install large multi-room building systems. Carrier has perfected a means of using the reliable and extremely simple air bypass principle to achieve automatic capacity control of high-velocity induction units.

With this new method, the rate of water flow through the coil remains constant. Total air quantity discharged by the unit into the room also remains constant. This approach to temperature control of induction units assures these major installation, performance and maintenance advantages:

**Factory-installed and factory-calibrated controls**

**Fully self-contained—no external pneumatic system**

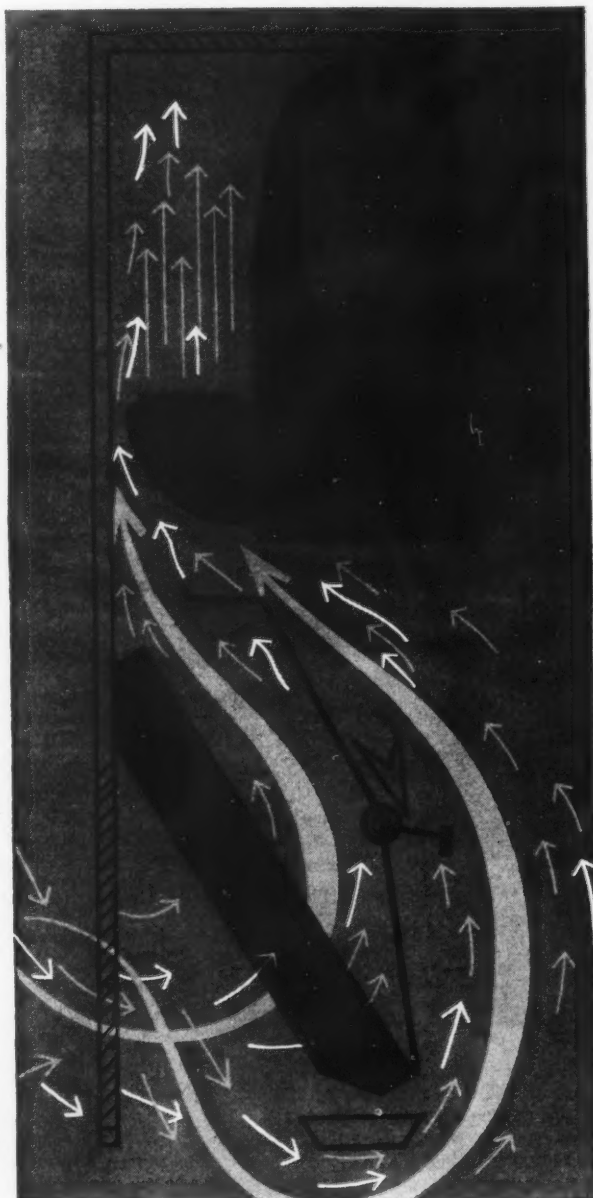
**Instantaneous response to room temperature changes**

**Smooth and silent action—no water throttling noise**

**Water control valves completely eliminated**

For complete information about the new 36R Bypass Weathermaster\* Unit, write Carrier Air Conditioning Company, Syracuse 1, New York. In Canada: Carrier Air Conditioning Ltd., Toronto 14.

\*Reg. U. S. Pat. Off.



Bypass damper provides any coil capacity from zero up to 100 per cent. In cutaway above, damper blade is half open.

**Carrier** Air Conditioning Company

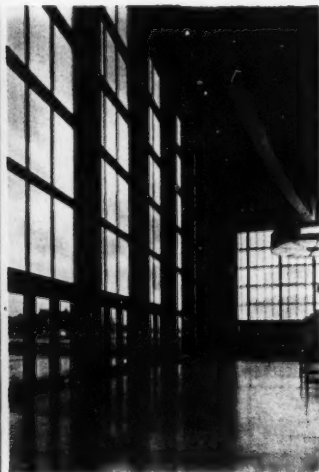


# Glass...

FOR NEW  
AND CREATIVE APPROACHES  
TO THE CURTAIN WALL



If this is the era of the curtain wall, as the notable buildings on this and the following pages amply indicate, then surely it is also the era of glass. For as curtain wall concepts develop and mature, glass offers the architect a constantly fresh and varied source of ideas for adding visual expressiveness to this highly functional form. The designer seeking new departures will find them implicit—in glass by AMERICAN-SAINT GOBAIN.







The Portland, Oregon Memorial Coliseum by Skidmore, Owings & Merrill is monumental in both size and concept, particularly after nightfall when it dominates the east bank of the Willamette like a glowing, transparent jewel box. Bold use of 81,000 sq. ft. of 1/4" and 3/16" LUSTRAGRAYS<sup>®</sup>, A-SG's neutral, gray-tinted glare-reducing glass, over the entire free-standing skin wall gives the structure spectacular vigor. It reveals great vistas from within, and the powerful curving form of the arena from outside. With unobstructed viewing for over 12,500 people, the Coliseum offers a wide range of spectator activities, and is the central structure of a large recreation-exposition complex. *Glazing Contractor:* Fentron Industries, Inc. *Window Wall Subcontractor:* Mercer Steel Co., Inc.

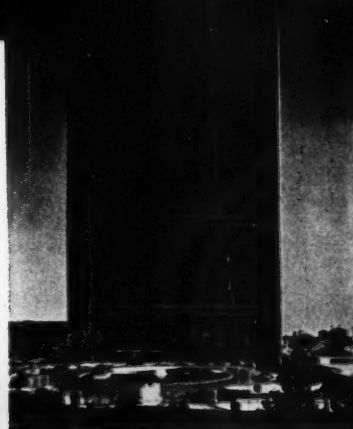


# Variations

ON THE CURTAIN WALL THEME—  
WITH FUNCTIONAL, COLORFUL GLASSES BY A-SG

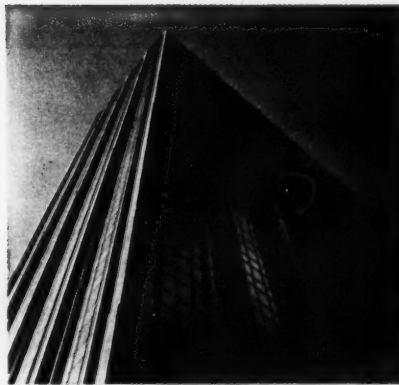


**AWARD WINNING HEADQUARTERS BUILDING**  
of Washington Water Power Company gains strong visual interest from spandrels of HUETEX® in two shades of blue. Huetex, A-SG's insulating glass facing, consists of glass, polished or textured on the weather side, with permanently bonded coatings of ceramic enamel and aluminum on the reverse. Colors may be matched to the architect's sample.  
Architects: Kenneth Brooks and Bruce Walker.

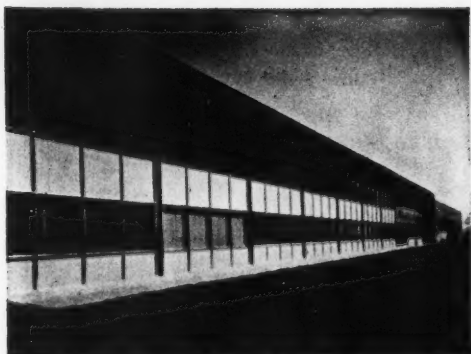


**UNITED NATIONS HEADQUARTERS BUILDING**  
was one of the first notable skyscrapers to utilize wired glass as a spandrel material. Here, heat-absorbing AKLO® in its wired form lends both structural qualities and cool dramatic green to one of the most breathtaking sights on the New York skyline.  
Architects: Harrison & Abramovitz.  
Glazing Contractor: David Shuldiner, Inc.

\*Reg. T.M.-Lic. by Corning Glass Works



**SUBTLE TEXTURE, DEEP REFLECTIONS**  
characterize the facing of the Time and Life Building. Polished wired glass gives stunning effects in an unusual application of a familiar material. Architects: Harrison & Abramovitz & Harris. Glazing Contractor: David Shuldiner, Inc.

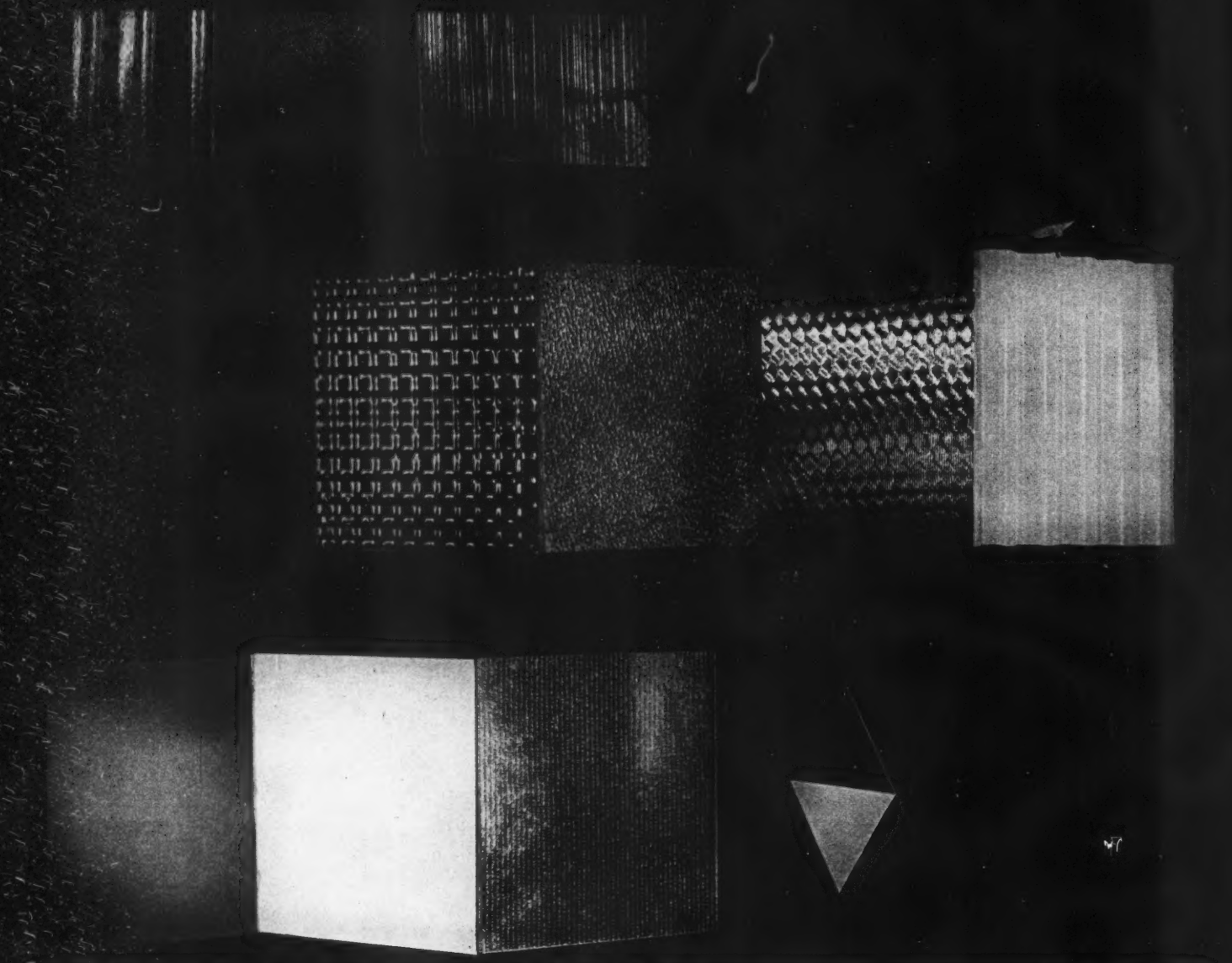


**LONG, HORIZONTAL ACCENT** is achieved by broad spandrel stripes of Huetex in striking Glacier White. Color adds dimension to the Fastener Division building of National Lock Company, Rockford, Illinois.  
Architects: Ragnar Benson, Inc.



**AMERICAN-SAINT GOBAIN**  
*Creative ideas in glass*






# Glass...

BY A-SG

...TO LOOK AT  
...TO LOOK THROUGH  
...TO ENHANCE BUILDING DESIGN  
WITH COLOR, TEXTURE, LIGHT



Flat glass by A-SG, in its almost infinite variety of finish, texture, color and transparency makes light a truly versatile building material in the hands of a talented designer. Glass is beautiful, practical, permanent. It is easy to install and maintain. For your next project, do as the noted architects whose work appears in these pages have done: Look to glass by A-SG.

For detailed information, see the following Sweet's files: *Architectural*: 7a/Am ... 16d/Am ... 3e/Amc, *Industrial Construction*: 6a/Am ... 3b/Amc, *Light Construction*: 2d/Am, *Plant Engineering*: 10a/Am.

For other information ... call the A-SG sales office nearest you, or write: American-Saint Gobain Corporation, Box 929, Kingsport, Tennessee.

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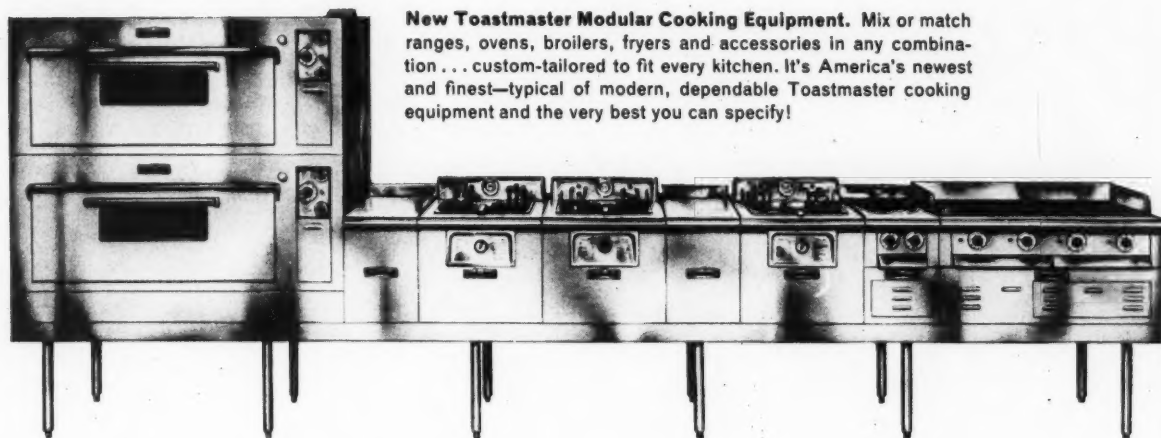


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The key to success in every kitchen is cooking efficiency. This means specifying cooking equipment designed to make the most productive use of kitchen space. It means cooking equipment that fits together, works together, looks good and *performs*. Equipment you can mix, change around and put where you want to create an efficient work flow.

Toastmaster cooking equipment meets these kitchen demands. And with Toastmaster, you choose a nationally-known brand that is respected by the entire food service industry. It is a preferred line—proved superior in performance and quality by the world's largest food serving organizations. And it is a complete line, a single source for every cooking need to create a modern, efficient, commercial or institutional kitchen. A line backed by a nationwide staff of Toastmaster commercial cooking specialists who stand ready to assist you.

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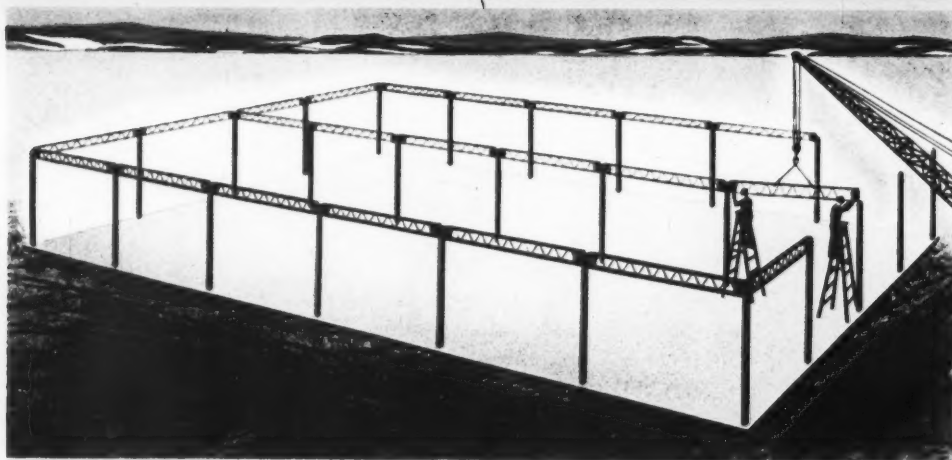
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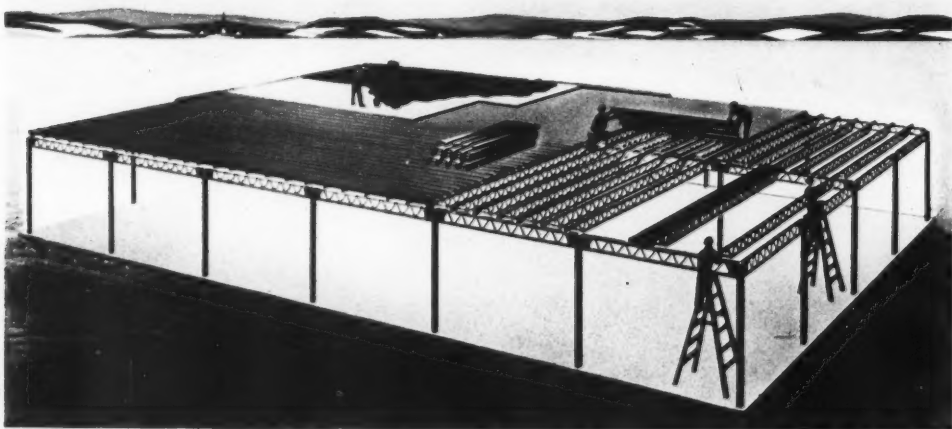
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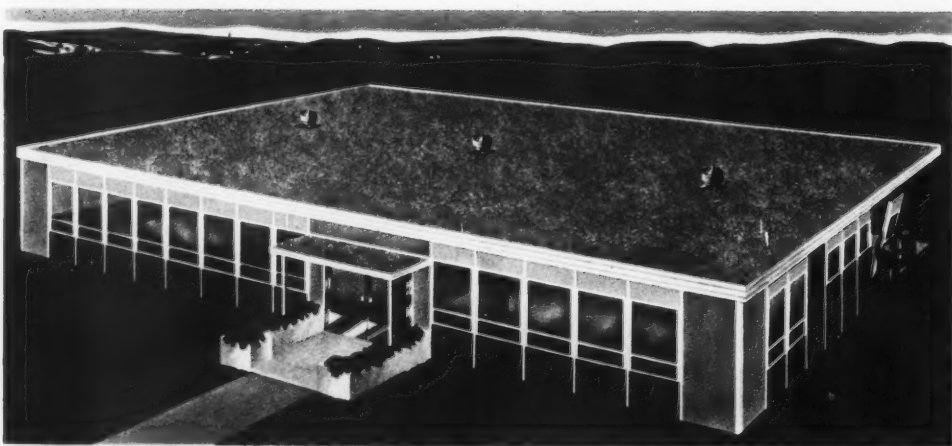




**A sturdy frame . . .**



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**Slim, colorful panels . . .**

**AmBridge Modular Construction for distinctive,  
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**American Bridge  
Division of  
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## NEW UNIVERSITY UNILINE acoustically-tapered p.a./hi-fi sound columns

### BUT FIRST THINGS FIRST. WHAT IS A SOUND COLUMN?

**THEORY:** Essentially a sound column is an in-line radiator using multiple speakers, one above the other, to provide broad horizontal dispersion and narrow vertical dispersion. The shape of the beam is similar to that of a fan held horizontally, its apex representing the source of the sound. As a result of its restricted vertical dispersion pattern, the sound is placed only where it is needed, avoiding reflections from the ceiling and floor to reduce acoustic feedback and reverberation.

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60" Column (6 extended-range 8" speakers)  
Frequency Range: 35-17,000 cps  
Power Capacity: 150 watts IPM  
Impedance: 16 ohms  
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Dimensions: 58½" x 10" x 7"

#### MODEL CSO-6

Same as above, but completely weather-proof for outdoor installations.

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40" column (4 extended-range 8" speakers)  
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40" column (Special, multi-design speakers for speech applications)  
Frequency Range: 150-10,000 cps  
Power Capacity: 40 watts  
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Vertical Angle: 22°  
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For complete specifications on all four of the new UNILINE Models, contact your UNIVERSITY representative or write:  
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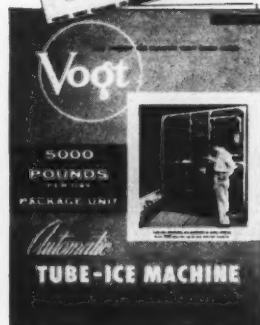
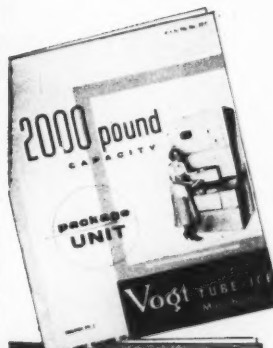
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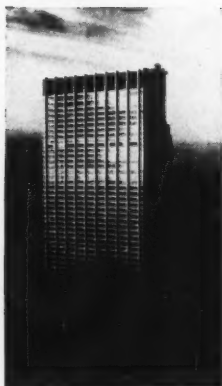
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## VERTICAL BLINDS of Du Pont Tontine® Trigras

allow full light control  
in new  
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Modern throughout, 1 Chase Manhattan Plaza has vertical louvered blinds in every one of its 8,800 windows. "Tontine" Trigras\* vinyl-coated woven glass fabric gives offices a smart new look. Blinds are neat . . . easy to clean . . . rotate to permit light desired and slide like a drapery to either side of window. They're dimensionally stable . . . resist curling, twisting, bowing or distortion. Long-lasting matte white finish reflects solar heat . . . helps keep rooms cool. Blinds fit windows of any size. Du Pont makes fabrics used . . . does not manufacture the blinds. Send coupon for free swatches of "Tontine" Trigras.

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Washable Window Shade Cloth

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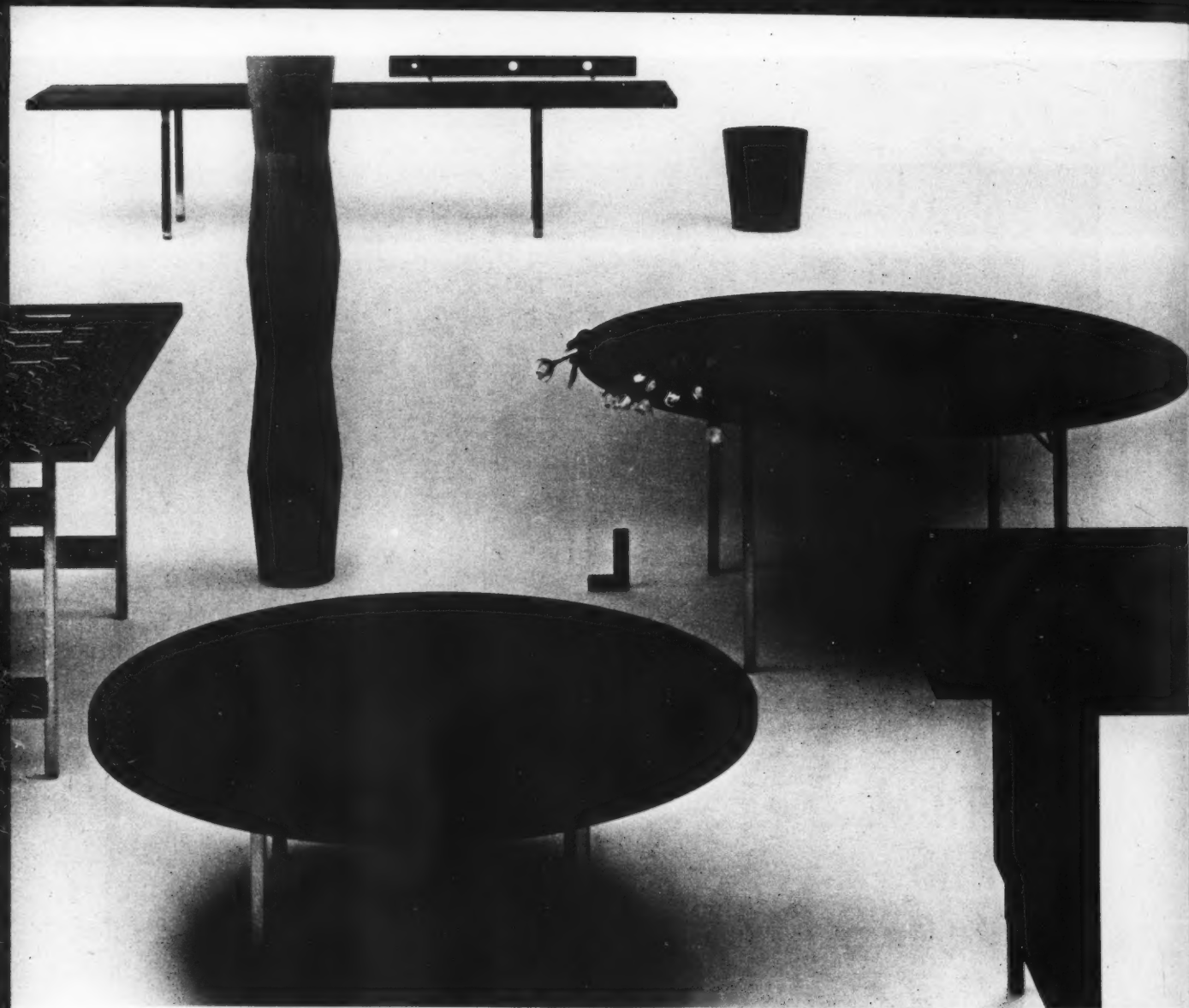
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City  Zone

State





Designer: Charles Deaton

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**TOP** Executive L-desk is combined with two 60" cabinets from The Template Group to form an attractive, functional work station in the President's office, Catalina, Inc., Beverly Hills, California.

**CENTER** Four executive desks with overhanging wood tops serve officers of the Union National Bank, Bartlesville, Oklahoma. Two smaller scaled L-desks were specified for the secretaries. All are from The Template Group.

**BOTTOM** Open front single pedestal desks with Textolite tops from The Template Group in the general office of Sutro Bros. & Co., New York City brokerage firm.

**THE LEOPOLD COMPANY**  
Burlington, Iowa

## The Record Reports

### U.L.I.-N.A.H.B. Study Cites Need of Modern Zoning

Out-of-date zoning regulations hampered by the single lot concept and involved legal verbiage are major barriers to better use of land suitable for residential development, according to a joint study on residential land use published by the Urban Land Institute of Washington, D.C., and the National Association of Home Builders.

"Density control zoning" is suggested to guide suburban growth into more compact areas which can be easily serviced with municipal facilities and include properly located open space and park land. Under this method population densities need not increase but more efficient use of available land is obtained.

The study, titled "New Approaches to Residential Land Development," points out that more dwellings designed into efficient groupings means lower road and utility costs and additional savings by advance planning for schools, churches and open space.

Promising development methods, including the planned community development, the cluster method and town houses, are discussed in this study. Differing from the small subdivision and the neighborhood in that it starts out by fixing land uses, building relationships, allocations of open space, the planned community development calls for a total concept instead of individual lot planning.

Other land development concepts discussed include circular blocks and lots, loop streets, mobile home parks and waterfront property.

The study, while recording some progress in altering zoning regulations which now prevent improved land use, concludes, "... only through improved planning techniques, through knowledge of prevailing enabling legislation and restrictions, numerous appearances before zoning bodies and tremendous diligence and patience can success be achieved."

Bulletin 40 which carries the study is available for \$6.00 a copy from the Urban Land Institute, 1200 18th St., N.W., Washington 6, D.C.

*more news on page 94*





## Now! A "fast-flow" storm water drainage system that cuts installed costs up to 28%

With Johns-Manville Transite® Pipe, you can control the flow of rain water from roof level to outfall with a system that can be installed at a 28% reduction in cost.

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WT-94



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Venetian terrazzo flooring and precast column covers made with ATLAS WHITE cement at the Denver Hilton Hotel. Architect: I. M. Pei & Associates, New York. Terrazzo Contractors: Joint venture of J. Bartoli Company, Inc., and Texas Terrazzo Company, both of Dallas. Precast column covers by Otto Buehner & Co., Salt Lake City.



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*in all lockers regardless of size at no extra cost!*

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Provides greater rigidity, protects against distortion and surface scratches.

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Brighter, lighter neutral finish blends with any exterior colors for beautiful two tone combination.

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Continuous, twin slope, 20 gauge steel hoods over regular locker tops look better and last longer than old fashioned, single slope tops.

**5 20-GAUGE EXPOSED END PANELS**

Heavier, stronger "Rib-Inforced" ends give rugged protection against denting, scratching and other damage.

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"Rib-Inforced" design provides positive protection against rust and rough, careless use.

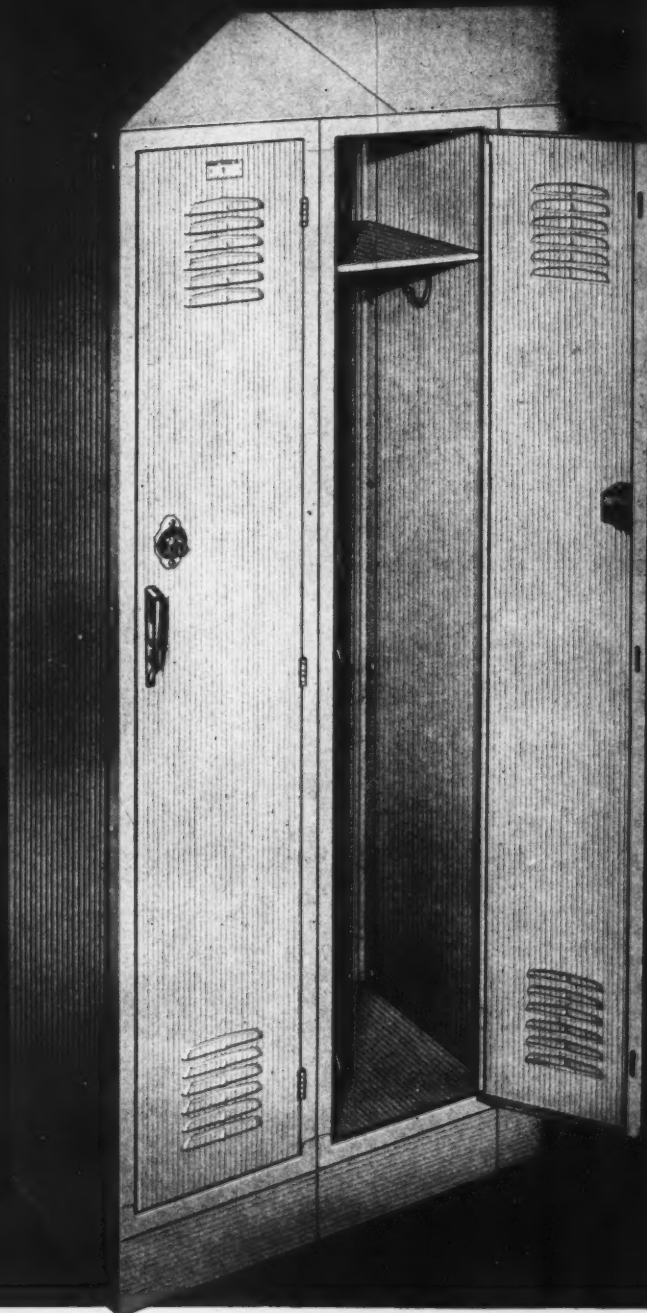
**7 PRE-LATCHING GALVANIZED LOCKROD ON ALL DOORS (including box locker sizes)**

Rubber silenced, with lift type chrome handle and integral padlock strike.

**8 COMPLETE LOCKERS OF GALVANIZED STEEL**

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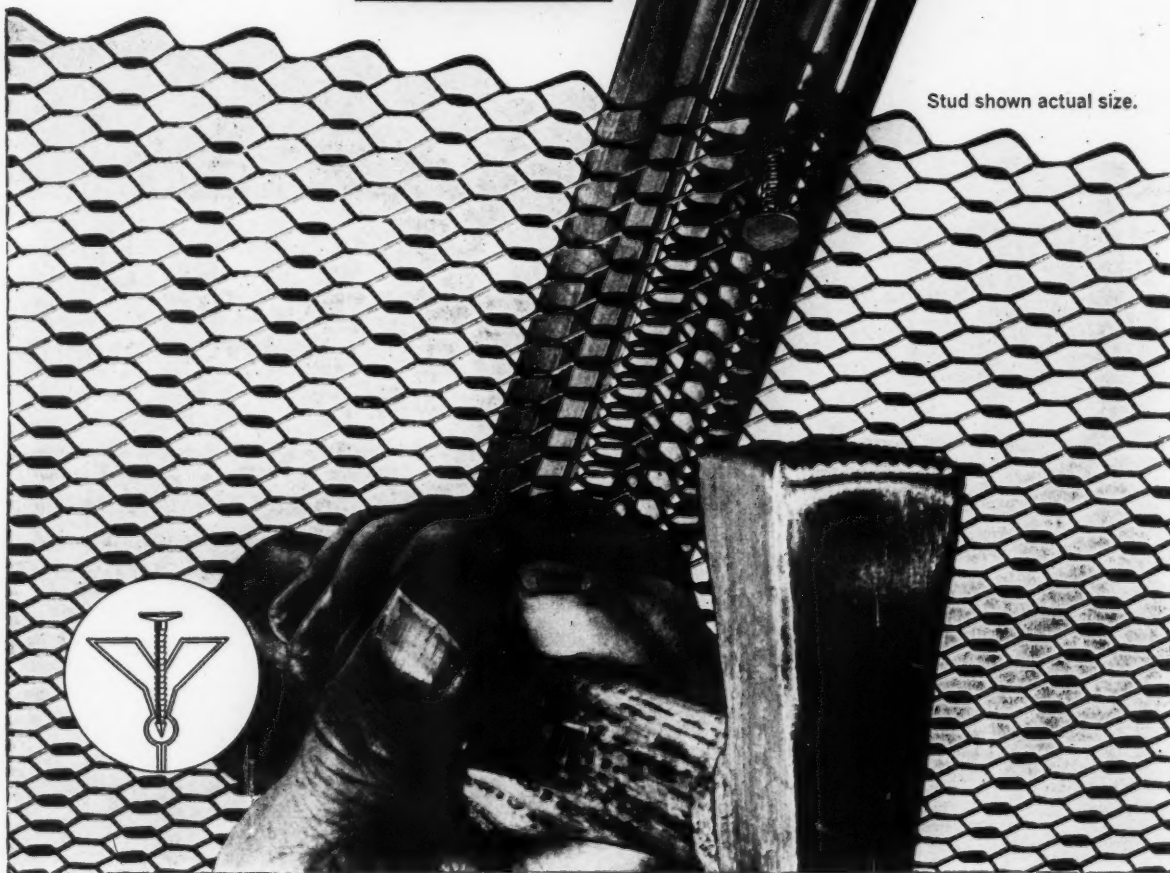
Like a free sample?

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a step ahead  
of tomorrow

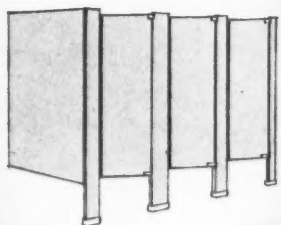


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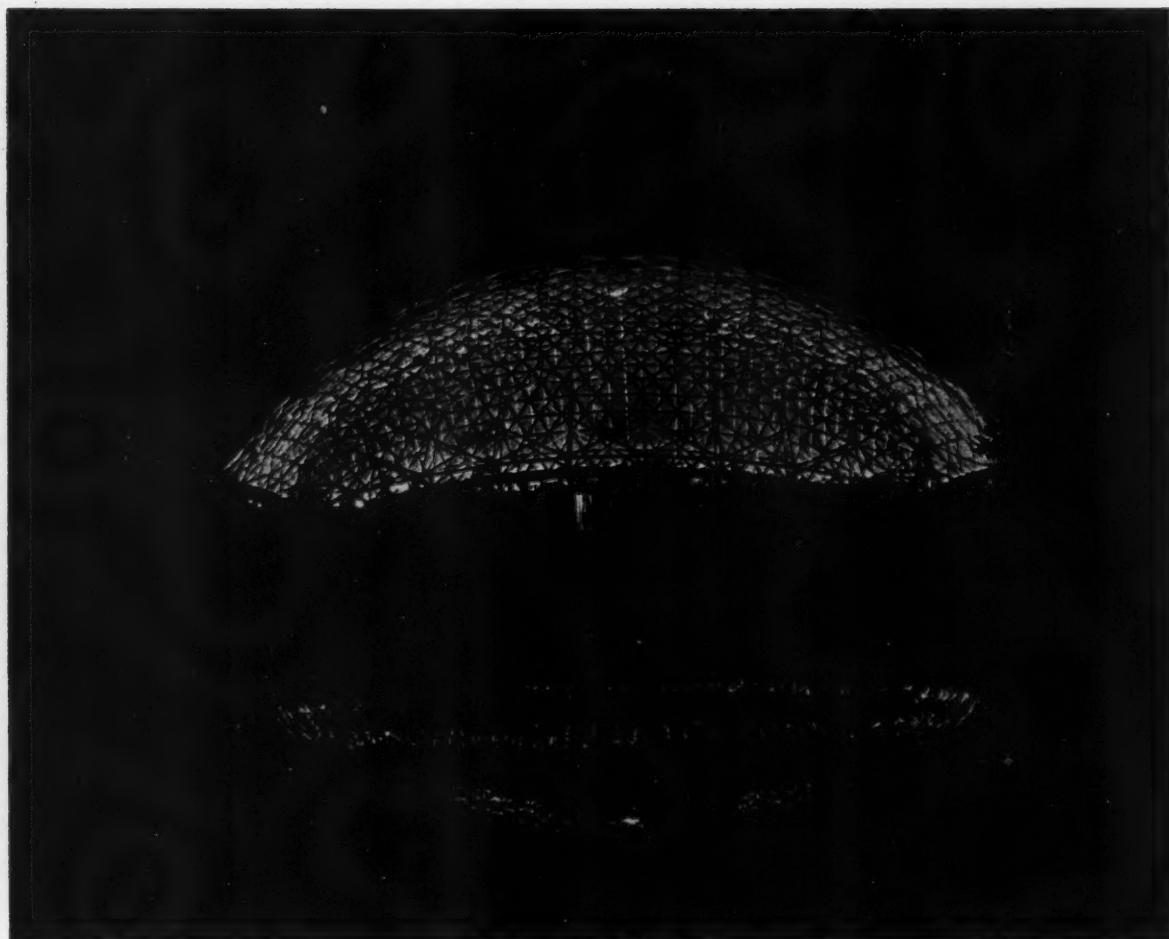
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Carna Studio photograph

## Man-made jungle thrives under Plexiglas sky!

In selecting a material to glaze the 35,000-square-foot dome of the Missouri Botanical Garden's Climatron, St. Louis—the world's only geodesic dome, fully climate-controlled, display greenhouse — PLEXIGLAS® acrylic plastic was the final choice.

Plexiglas was specified for the Climatron because of its—

- Superior breakage resistance
- Light weight—40% the weight of glass
- Rigidity
- Optical transparency
- Light transmittance
- Ability to withstand snow and wind load
- Weather resistance

The Climatron contains a variety of artificially produced tropical climates for plants, which grow and bloom much as they would in the jungles from which they came.

Four thousand triangular pieces of PLEXIGLAS comprise

the enclosure. Each panel is sealed with neoprene gaskets in aluminum mullions and this assembly is suspended from the tubular aluminum framework of the dome. Architects: Murphy and Mackey, St. Louis.

For a complete description of how PLEXIGLAS is used for the Climatron, and further information on the many uses of PLEXIGLAS as an architectural material, write: Rohm & Haas Co., Washington Square, Phila. 5, Pa.

**ROHM  
&  
HAAS**

PHILADELPHIA 5, PA.



In Canada: Rohm & Haas Co. of Canada, Ltd., West Hill, Ontario

# PLEXIGLAS



# Only new Lumi-Flo air handling Troffers offer all these advantages

Benjamin has forged far ahead of the field with this latest advance in combination lighting and air handling fixtures.

These improvements are basic; it is to your advantage to give yourself the security of a thorough investigation before a final decision is made.

## CLEAN CEILINGS WITH COMPLETE FLEXIBILITY

With Lumi-Flo you can be assured of ceilings which are esthetically clean without any visible ceiling obstructions. All you see is an attractive, well illuminated ceiling. With the new Benjamin Triple-Shell Lumi-Flo, you can light, cool, heat and ventilate interior areas through the same concealed troffer. When it comes to flexibility, Lumi-Flo can't be topped—you can design your building so that every 25 or 250 sq. ft. of floor area has its own air conditioning and ventilating. Better yet, when your requirements vary, you can have both in the same installation.

## OFFERS MAXIMUM LIGHT EFFICIENCY

With Triple-Shell Lumi-Flo, the air supply is separated from the lamp chamber by an insulating air gap. Used on cooling or heating cycle, Triple-Shell construction permits heat dissipation to the plenum, yet prevents lamp chamber from over-cooling (which causes "pink-light") or over-heating (which reduces lamp efficiency).

*Lumi-Flo offers the highest average operating efficiency possible through the normal cooling and heating ranges.*

Lamp flicker and color variation caused by over-cooling are things of the past with Triple-Shell Lumi-Flo.

## AN AIR CAPACITY TO MEET EVERY JOB CONDITION

With Triple-Shell Lumi-Flo, you can meet the exact requirements of any job, large or small. Two types of dampers engineered by Tuttle & Bailey give air-handling capacities from zero to over 200 CFM and combine with two basic air patterns to offer the best possible combination of capacity and distribution for your specific application.

## FASTER, MORE ECONOMICAL INSTALLATION

No cumbersome yokes—a swivel bar hanging device cuts installation time as much as 50%. Damper installation is simple and quick—one snap and a special locking device makes the damper a permanent part of the troffer. Special neoprene gasketing eliminates the possibility of air leaks.

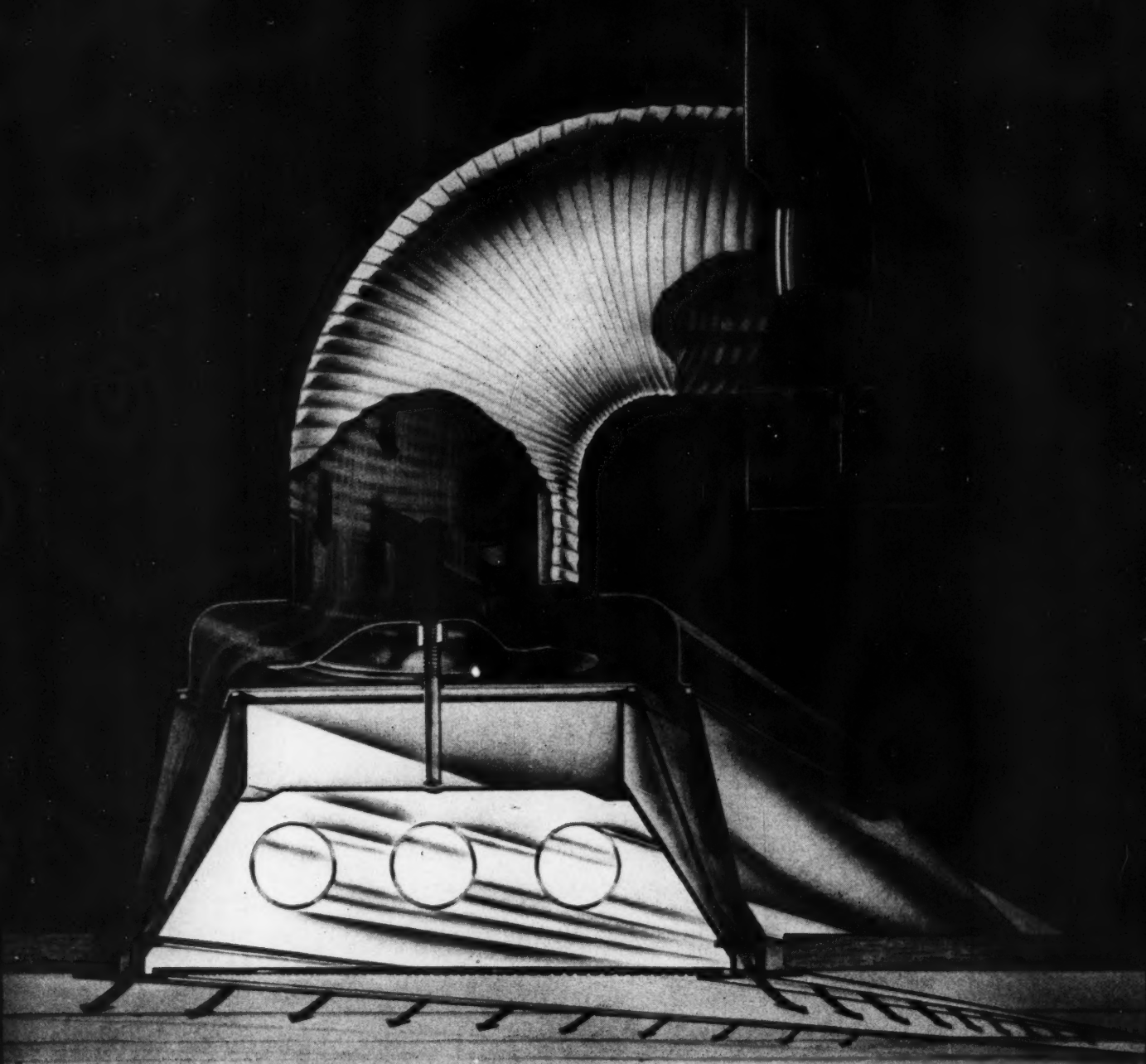
## DAMPERS ARE QUIET, EASILY ADJUSTABLE

Dampers are engineered by Tuttle & Bailey for quiet operation at all capacities. The dampers adjust quickly, easily—give precise adjustment over wide pressure ranges. Balancing is simplified.

Lumi-Flo is the only complete line listed by Underwriters' Laboratories for lighting, cooling and heating.







▲ Here is a cutaway view of the new Benjamin Triple-Shell Lumi-Flo troffer. See how the damper diffuses the air and directs it evenly to air manifolds on both sides of the troffer. Note also how the lamp chamber is separated from the air passageway at top and sides by an insulating air gap. This lets lamps operate at near their optimum design temperature—unaffected by the cooling or heating air flow.

◀ Here's what Triple-Shell Lumi-Flo troffers do for ceilings. The integrated lighting and air conditioning system is totally compatible in function and appearance with the handsome architecture of the Illinois Agricultural Building at Bloomington, Illinois.

## Write today for new, 40 page Lumi-Flo Catalog

The most complete manual on Air-Handling Troffers ever compiled.

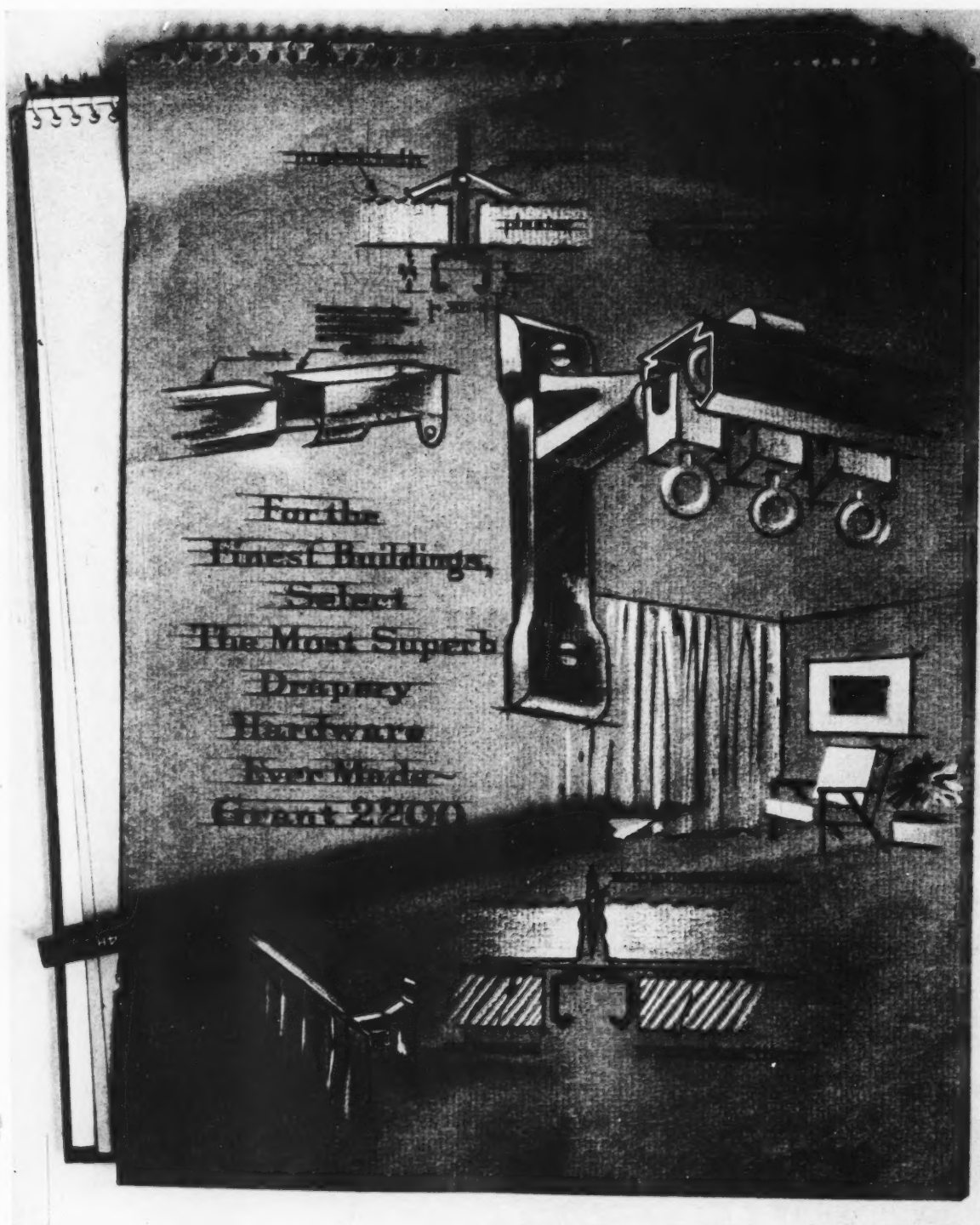


**BENJAMIN**  
DIVISION

THOMAS INDUSTRIES Inc.  
207 EAST BROADWAY  
LOUISVILLE 2, KENTUCKY

Air Handling components by Tuttle & Bailey Division of Allied Thermal Corporation, New Britain, Connecticut.





## GRANT DRAPERY HARDWARE

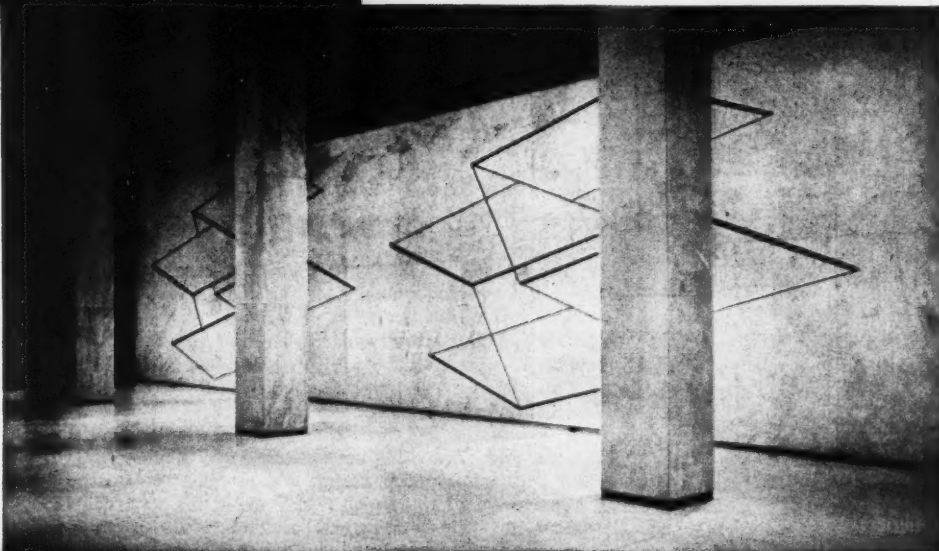
GRANT PULLEY & HARDWARE CORPORATION ■ EASTERN DIVISION/ 9 HIGH STREET, WEST NYACK, N. Y.  
 ■ WESTERN DIVISION/944 LONG BEACH AVE., LOS ANGELES 21, CALIF. ■ SLIDING DOOR HARDWARE ■ DRAWER  
 SLIDES ■ DRAPERY HARDWARE ■ POCKET FRAMES ■ PULLS ■ CLOSET RODS ■ SPECIAL SLIDING HARDWARE





# MARBLE

...for dramatic beauty  
in another major building



CORNING GLASS BUILDING, NEW YORK, N. Y. • ARCHITECTS: HARRISON & ABRAMOVITZ & ABBE



Marble Institute

In New York's new Corning Glass Building, architects Harrison & Abramovitz & Abbe sheathed the lobby columns, walls and elevator areas with the classic beauty of domestic white marble. For the exterior areas above a reflecting pool, they framed diamond-matched sections of dark green marble behind glass panels set in stainless steel frames. The marble will require little maintenance . . . remain an economical and beautiful choice through the years. Significantly, marble is being specified for large and small installations by architects of note throughout the country.

Qualified members of the MIA can give you complete information on the selection and use of more than two hundred marbles. For detailed literature and a list of members, write

32 SOUTH FIFTH AVENUE, MOUNT VERNON, NEW YORK



# DESIGN FOR CHURCH SPIRE WINS COPPER AND BRASS AWARD

A new design in a church spire has won for Hugh Moore Jr., A.I.A., Easton, Pa., the 1961 Copper and Brass Achievement Award for distinguished application of the copper metals in architecture. The award, \$500 and a bronze trophy, was presented to Mr. Moore during the annual meeting of the Copper & Brass Research Association.

The prize-winning spire, made en-

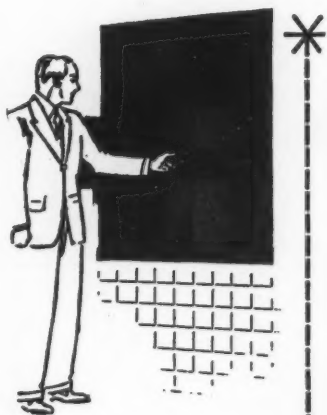
tirely of bronze, was recently erected on St. Michael's Roman Catholic Church in Easton, replacing one destroyed by fire some years ago.

Mr. Moore used only standard mill forms for his 32-ft high structure, thereby avoiding production costs associated with specially designed shapes. Materials were bronze angles, flats, rods and tubes joined with bronze bolts. The form of the spire is

described in the award announcement as "based on early Gothic prototypes."

Special citations for outstanding merit were awarded William J. Conklin, partner in the firm of Mayer, Whittlesey & Glass, for his design of a five-story bronze façade of the Painting Industry Insurance Building in New York; and R. F. Schulteis for his engineering work involving the design and application of a copper roof on the Wells Fargo-American Trust Building in San Francisco. Architects were Skidmore, Owings & Merrill.

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This places the responsibility for the entire installation in the hands of *one* supplier — cutting in half the red tape, contracts and approvals, and eliminating your coordination of door and dumb waiter design and erection. Furthermore, all equipment is shipped at the same time, saving shipping and handling costs. The same mechanics install both doors and dumb waiters.

Sedgwick Dumb Waiters and Doors are available in a complete range of modern, improved types and standard sizes that can be adapted to fit requirements exactly.

(See standard specifications and layouts in SWEETS 24a/5a)

Doors are manufactured in bi-parting, slide-up, slide-down or hinged arrangement. Also access and clean-out doors. (Underwriters' Labelled where required.) Send today for complete literature and specifications.

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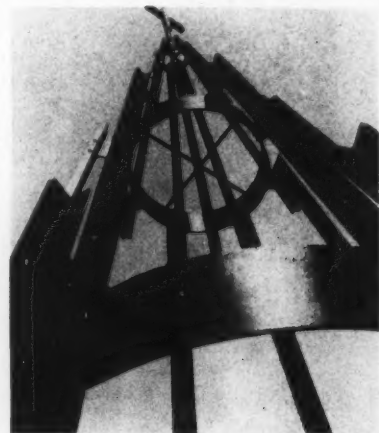
#### Other Sedgwick Products

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#### NATIONWIDE SERVICE




Bronze spire, 32 ft high, on Easton, Pa. church (built in 1853) has won 1961 Copper and Brass Achievement Award for architect Hugh Moore Jr. Components are all standard mill forms



more news on page 113





McMorran Memorial Auditorium, Port Huron, Mich. Architect: ALDEN DOW, Midland, Mich. General Contractor: COLLINS & CATLIN, INC., Port Huron. Fabricators and Erectors: MAUL MACOTTA CORPORATION, Detroit.

## Exciting new design role for Revere Copper

### Maul Macotta Corporation Panels Feature Unusual "Planter" Façade

To finish off the two entrances of this building, the architect could have used any material he wished. But he asked himself what would be the most striking treatment, yet still be in keeping with the architecture of the building proper.

His answer? The unusual "planter-type" facade you see here. It is faced, not with plain copper panels, but with embossed panels framed with smooth copper. The attractive "aged" effect was secured when the contractor applied an artificial patina.

Practically unlimited design possibilities become available when you design with copper, as in this project. So easy to work with and form, so versatile in its application

possibilities, copper offers the architect challenging opportunities in design and virtually no limitations on his thinking. No wonder it is so practical to "Design with copper in mind."



## REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

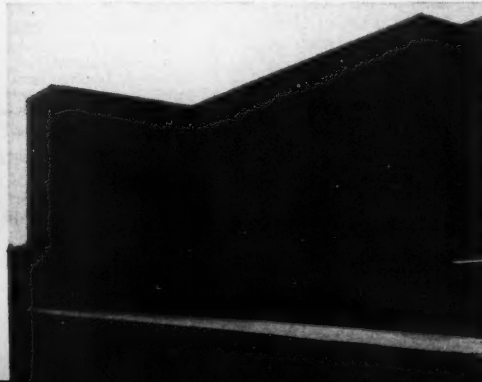
230 Park Avenue, New York 17, N. Y.

Mills: Rome, N.Y.; Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles, Riverside and Santa Ana, Calif.; New Bedford and Plymouth, Mass.; Brooklyn, N.Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities.

Distributors Everywhere

The two entrances of the building used 5,000 pounds of Revere sheet copper in .032" gauge. 48" x 48" panels were installed by MAUL MACOTTA CORPORATION

over a backing of 1/4" light-weight aggregate concrete. Interlocking tongue and groove joints made of brass strip were installed on all four sides of the panels.





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INSULATED  
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at lower cost—

## BUILD WITH HOMASOTE PRODUCTS

1056 sq. ft.  
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covered with only  
11 sheets 8' x 12'  
Homasote sub-flooring.

### SOUND DEADENER DUST BARRIER

Quickly nailed in place, this 5/8" insulating and sound-deadening sub-floor protects finished flooring from dampness or excessive drying out. Why nail 176 separate pieces when you can do the job with 11?

HOMASOTE COMPANY, TRENTON 3, N. J.

*Check  
these  
costs!*

You save up to \$80  
for a 1,000 sq. ft. house!

HOMASOTE	\$137
1" PLYWOOD	\$185
WOOD SUB-FLOORING	\$317

Ask your lumber dealer  
for free Homasote  
Handbook. Its 72 pages  
tell you how to make  
many other savings.

**Homasote  
Handbook**

### ACTUAL SIZE OF LUMBER \$45

1" Thick 3/4"	2" Wide 1 3/4"	6" Wide 5 1/2"
1 1/4" Thick 1 1/4"	3" Wide 2 3/4"	8" Wide 7 1/4"
2" Thick 1 1/2"	4" Wide 3 3/4"	10" Wide 9 1/4"

Example: 2 x 6 is 1 3/4" x 5 1/2"

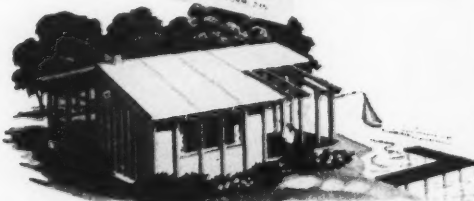
## FOR EXAMPLE:

**Why not save \$48 to \$80  
on every 1,000 square foot  
of sub-flooring?**

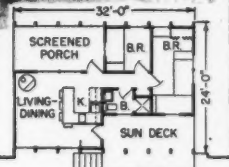
When you use 5/8" Homasote as Sub-Flooring you give your customer a more comfortable home. The Homasote acts as a sound-deadener and a dust barrier. You save money on the sub-flooring material itself. You have no danger of cupping. You save still more money on the time required for application. Eleven sheets—8' x 12'—cover 1,056 sq. ft. of floor joists. Why handle and nail many more pieces of material when you can do a better job with only eleven pieces?

Homasote Products help you cut your costs—because of the many sizes (up to 8' x 14') in which they are available—and by their weatherproofness. They lend themselves to many uses other materials do not.

The major facts about each product are presented in briefest terms—on a colorful Nutshell Card (as pictured above). Handy reference tables—such as lumber sizes—are included. Ask your Lumber Dealer—or write us—for a set of these cards. Each shows you where you can save money at some point of construction—and still give the home owner higher quality, finer appearance and more lasting satisfaction. And—be sure you always have available a copy of the latest edition of the 72-page Homasote Handbook. Kindly address Dept. K-1.



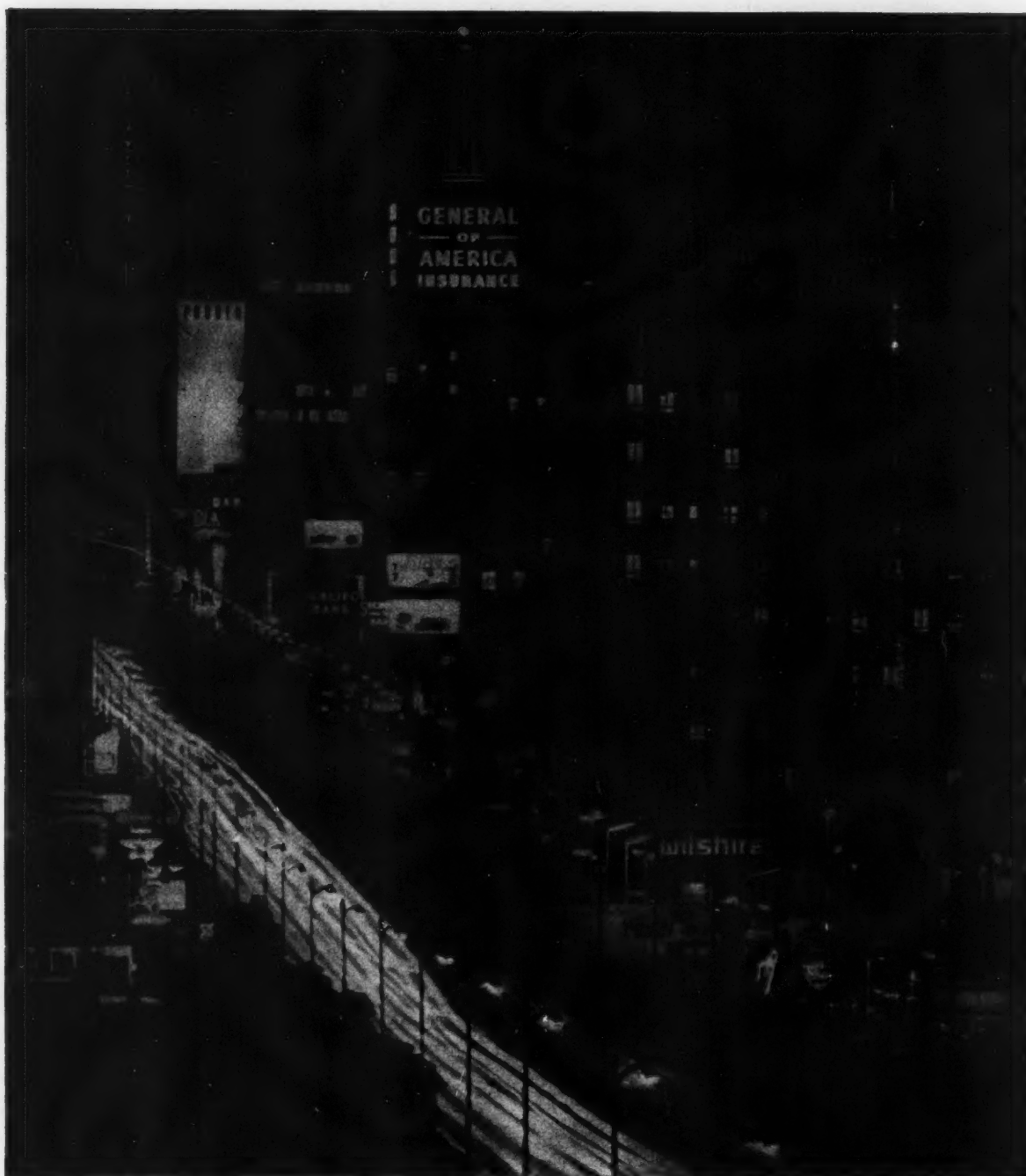
**TO WIDEN YOUR MARKET**  
...get the full facts about Vacation and Small Homes, Farm and Utility Buildings constructed by the new Versitruss-Panel System. Also—ask about Homasote's Vacation and Small Home Financing Plan.



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Wilshire Boulevard looking west from Rimpau Boulevard

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The  
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**LIGHTING FIXTURES BY**

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Today you can specify or purchase a wide variety of industrial lighting fixtures at varying prices. Many of these fixtures have particular features that make them advantageous to use in specific applications.

But now from Sylvania comes a complete and versatile line of NEW industrial fixtures... a series that includes all of the features you normally look for in a fixture plus outstanding quality points all its own.

**THIS IS SYLVANIA'S POWER-V SERIES**

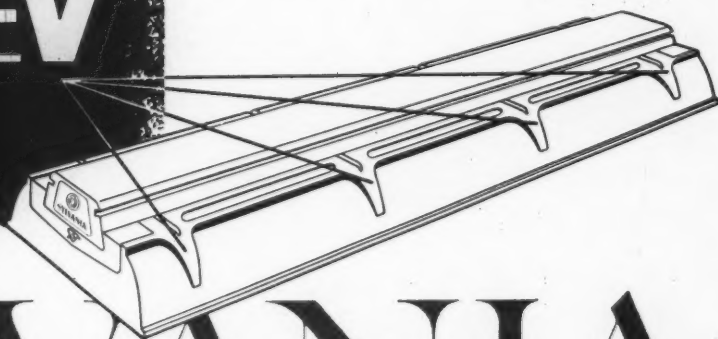
A ruggedly-built series that shrugs off accidental abuse... that features a new concept of design providing a wider and deeper embossed reflector for better lighting yet maintaining a low silhouette for handsome appearance.

Power-V units are designed to meet RLM specs and can handle all types of the powerful 1500 ma extra-high output lamps.

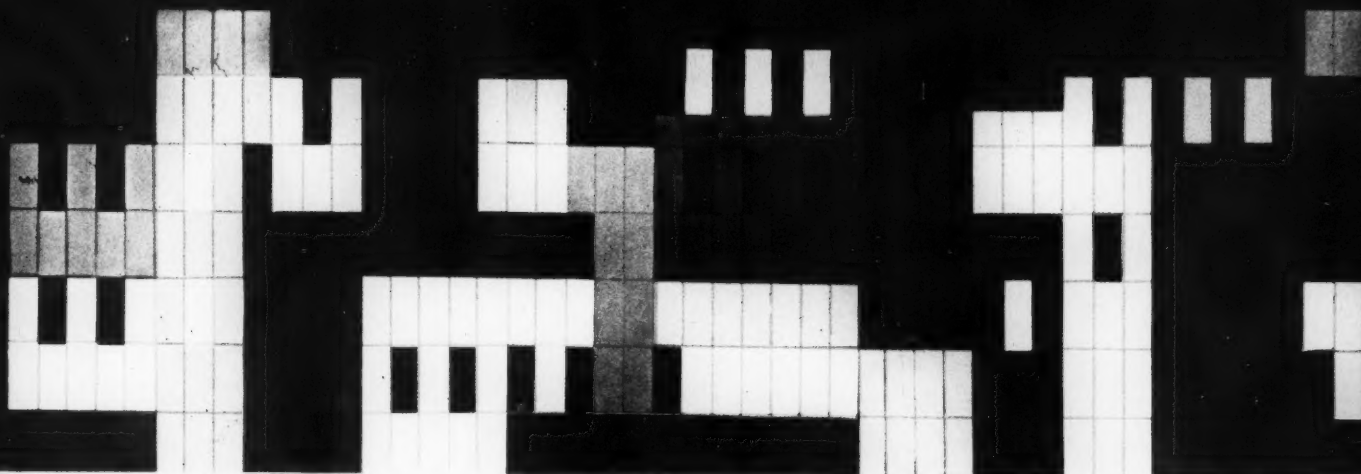
The Power-V Series is simple to install... easy to maintain... provides long, trouble-free service... yet is modest in cost.

If you have any interest in industrial lighting, you should learn about Sylvania's Power-V Series. For additional information, write to:

SYLVANIA LIGHTING PRODUCTS  
A Division of SYLVANIA ELECTRIC PRODUCTS INC.  
One 48th Street, Wheeling, West Virginia







"A PITTSBURGH HILLSIDE" is the subject of this colorful, symbolic mural-wall created through the imaginative use of ceramic glazed Natco Vitritile.

## HOW A PITTSBURGH HILLSIDE INSPIRED A NATCO VITRITILE WALL DESIGN

When the advertising agency of Ketchum, MacLeod and Grove, Inc. recently moved its headquarters into the new Gateway Four Building in Pittsburgh, Pennsylvania, managing art director Ed Hall was given the assignment of designing the employees' canteen.

On one of the walls Mr. Hall used a colorful selection of ceramic glazed Natco Vitritile units as an "art medium" to symbolize a typical Pittsburgh scene . . . the town houses which appear to be hap-

hazardly stacked along the city's steep hillsides.

The pleasing result of the Vitritile mural-wall is shown in the photograph above.

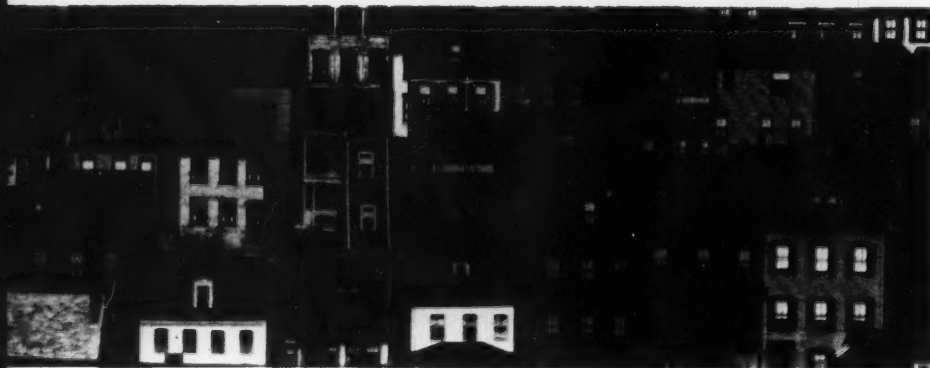
Ceramic glazed Natco Vitritile is a *genuine*, load-bearing clay tile product that will always retain its original "new look." Vitritile—available in 44 standard and accent colors—offers an unlimited choice of modern color combinations.

Why not use Vitritile to enhance the beauty of your next new building?

*Today's idea becomes tomorrow's showplace . . . when Natco Structural clay products are in the picture*

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GENERAL OFFICES: 327 Fifth Avenue, Pittsburgh 22, Pennsylvania . . . Branch Offices: Boston • Chicago • Detroit • Houston • New York • Philadelphia • Pittsburgh • Syracuse • Birmingham, Ala. • Brazil, Ind. . . . IN CANADA: Natco Clay Products Limited, Toronto



**Left:** Quaint, vari-colored town houses stacked along a hillside is a familiar Pittsburgh scene.

**Right:** 3¼" x 5½" x 11¾" ceramic-glazed Vitritile unit similar to those used in the KM&G mural-wall.





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one hand*  
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*and on the other*  
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prove to you that the best floor treatments not only give your floors  
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VINYL • RUBBER or GYMNASIUM  
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**BRANCHES AND WAREHOUSES IN PRINCIPAL CITIES**





Architect: Gordon Stafford;  
general contractor: Gordon H. Ball, Inc.;  
structural engineer: George E. Goodall Co.;  
steel fabricator and erector: Martin Iron Works, Inc.

ENTIRELY NEW CAMPUS for Sierra College, a junior college of Placer County, California. Buildings for 1,000 students have exposed light steel framing, with textured natural materials between columns. Steel framing was selected for economy: prefabrication and simple field erection held costs to a minimum.

## *By 1970:* \$10 billion worth of new college buildings

To house the students expected to flood American campuses in the next decade, some \$10 to \$15 billion in new facilities must be built.\* Enrollments, now at nearly 4 million, are expected to zoom to around 6 million.

Some questions facing college administrators, their architects, and alumni:

How to achieve permanence and beauty at low initial building cost?

How to shorten construction time?

What framing material is adaptable both to traditional and contemporary architecture?

How can maintenance costs be held to a minimum?

Steel is the logical answer to all of these questions. And it gives designers and builders other advantages, too. Steel framing permits column-free interiors. Steel is easily adapted to steep sites. And it can be fabricated into almost every shape.

\*Source: "Ten Year Objectives in Education, Higher Education Staffing and Physical Facilities, 1960-61 through 1969-70." U. S. Department of Health, Education and Welfare, January, 1961.



# BETHLEHEM STEEL





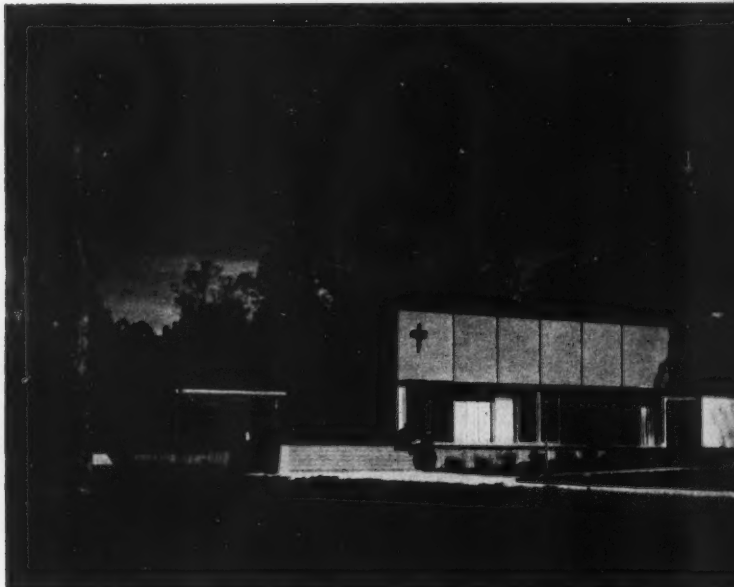
for Strength  
... Economy  
... Versatility



Architect: Robinson, Green and Beretta;  
general contractor: E. Turgeon Construction Co.;  
steel fabricator: Providence Steel & Iron Co.



**REFECTORY** for Rhode Island School of Design, in Providence, can accommodate 400 students at a sitting. Tapered steel columns and steel roof beams support the high-vaulted ceiling. Typical of many colleges, this building is part of a 10-year expansion of residential facilities.



**LIBRARY**, Gwynedd Mercy Junior College, near Philadelphia. Structural steel frame allowed for liberal areas of glass, opening entire structure to its attractive woodland setting. This prize-winning structure, framed in steel, provides for future expansion of stack areas without difficult alterations.

Architects: Nolan & Swinburne;  
structural engineers: Allabach & Rennis, Inc.  
builder: John P. Donovan.

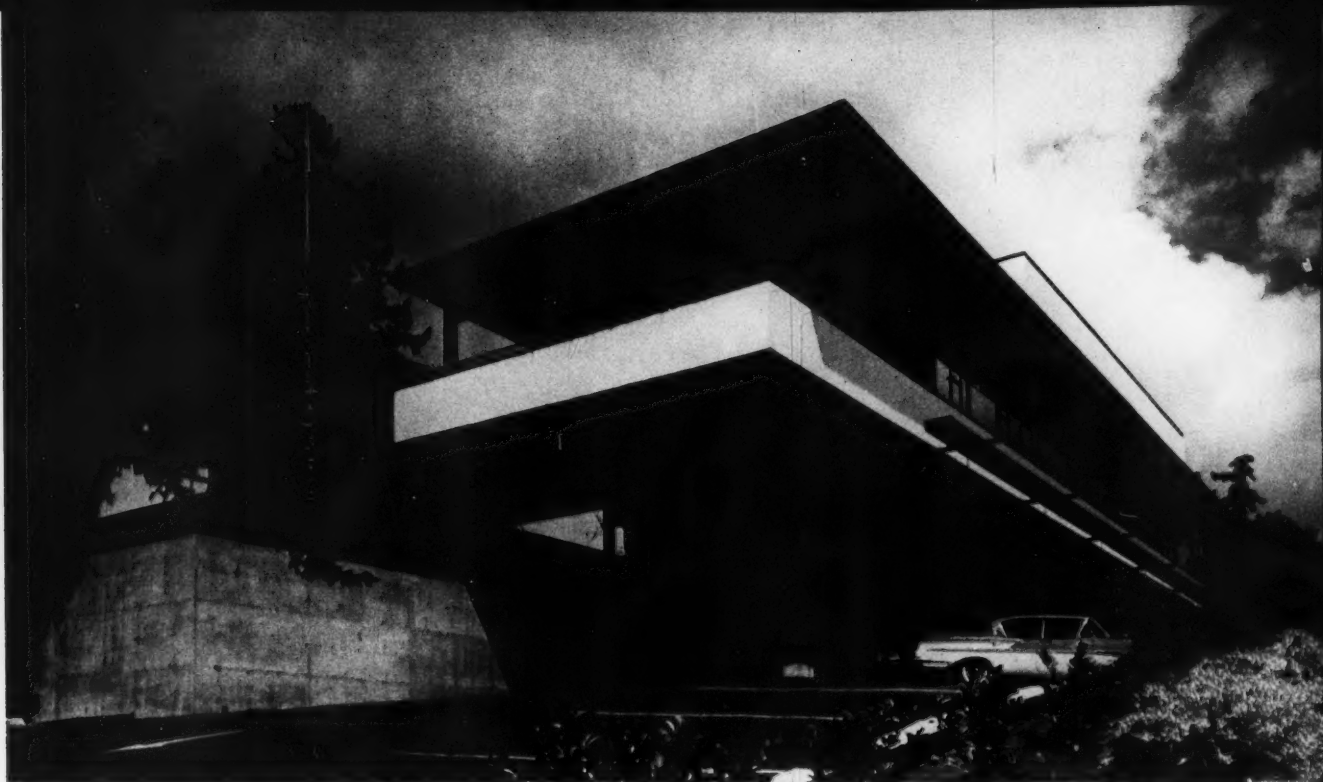
**AUDITORIUM** for Brown University. The 208-ft diameter steel dome of the George V. Meehan Auditorium is framed with Bethlehem structurals. Every seat has an unobstructed view because steel's strength allows for tremendous spans without interior columns. Bethlehem steel pipe, buried in the floor, is part of the ice-making system for use during hockey season. Bethlehem also supplied many tons of reinforcing bars used in constructing the Auditorium.



Architect: Perry, Shaw, Hepburn, and Dean;  
consulting structural engineer: Nichols, Norton & Zaldastani;  
general contractor and steel erector: Gilbane Building Co.;  
fabricator: Tower Iron Works, Inc.







Associated architects: Paul Hayden Kirk, F. A. I. A. and Associates,  
and Victor Steinbrueck, A. I. A.  
structural engineer: Sigmund Ivarsson;  
general contractor: Wick Construction Co.;  
steel fabricator: Isaacson Iron Works.

**FACULTY CLUB** at the University of Washington, Seattle, exhibits another striking advantage of steel: taking advantage of a steep site. Bethlehem structurals, in addition to framing the attractive building, support the dining room on the lakeside of the building where the land falls off steeply, allowing for parking space underneath. Residential scale of building and exposed steelwork achieve casual yet striking beauty.



**STUDENT CENTER** at the College of William and Mary, Williamsburg, Va., includes a 200-seat meeting-room, a craft shop, dark-rooms, bowling alleys, ballroom, and space for other extra-curricular activities. Steel-framed, the Campus Center is in the traditional spirit of Colonial Williamsburg, yet modern in every respect.

Architects: Wallford & Wright;  
general contractor: Harry B. Graham Co., Inc.;  
steel fabricator: Montague-Betts Co., Inc.

# BETHLEHEM STEEL





Architects: Kitchen & Hunt and John Funk, Architects Associated;  
 general contractor: Continental-Heller Construction Co.;  
 structural engineer: H. J. Brunner;  
 steel fabricator and erector: Yuba Erectors, a division of Yuba Consolidated Industries, Inc.

**CAFETERIA** at the University of California's Davis campus accommodates 600 students at a sitting, and serves a complex of four residence halls. Exposed steel frame features steel-beam arches bent to a 22-ft radius. Steel decking, exposed on the interior, forms the roof.

## A COMPLETE LINE OF CONSTRUCTION STEEL

**Structural Steel** . . . all standard and wide-flange shapes

**Open-Web Steel Joists** . . . complete series of shortspan and longspan types

**Slabform** . . . formed sheets for poured concrete floors and roofs

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*Specialty*—Tie Rods, Anchor Bolts, U-Bolts, Special Fasteners

**Fabricated Steel** . . . Bethlehem fabricates and erects steelwork for many types of structures

**Steel Plates** . . . universal and sheared, in all structural grades

**Steel Pipe** . . . Butt-Weld, Electric-Resistance Weld, and Electric Fusion-Weld in a full range of sizes

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**Galvanized Sheets** . . . for ductwork, roofing and siding, drainage pipe

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.  
 Export Sales: Bethlehem Steel Export Corporation

# BETHLEHEM STEEL





OUTER  
ACRYLIC  
DOME

INNER  
ACRYLIC  
DOME

DEAD  
AIR  
SPACE

# WASCO TWIN DOME

ALUMINUM  
RETAINING  
FRAME

POLYSULFIDE-BASE  
SEALANT

HARDBOARD INSULATION

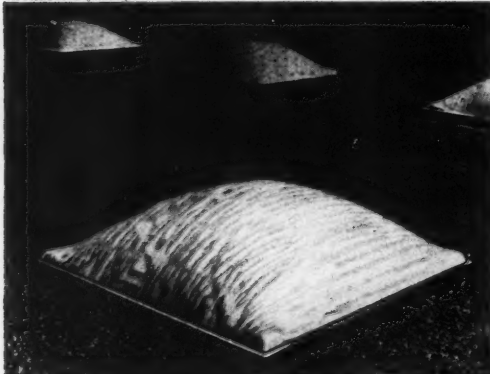
$\frac{3}{4}$ " ALUMINUM GRAVEL STOP

3" ALUMINUM  
NAILING FLANGE



Twin Dome is installed in 15 minutes. Continuous 3" flange is nailed to roof deck, covered with 4 alternating layers of mastic and roofing felt, plus hot tar, gravel.

N. Attleboro (Mass.) Jr. H. S. Architects: Haldeman & Jacoby, Brockton, Mass.



Low roof-hugging silhouette enhances architect's design. Finished installation is neat, airtight, watertight, insulated to prevent condensation.

## THE FIRST TOTALLY PROVEN DOME-WITHIN-DOME DESIGN

The new self-flashing Wasco Twin Dome is the first daylighting product of its kind with both inner and outer domes of shatterproof, weatherable Acrylite®. A field-proven polysulfide-base sealant ensures permanent compatible bonding of the two domes and an aluminum nailing flange. The uniform, hermetically sealed 1-inch dead-air space between the domes acts as a highly efficient thermal barrier and eliminates condensation. With its self-flashing design, the unit hugs the roof — permitting fast, economical, curb-free installation.

Choice of clear, white translucent and reflective inner and outer domes allows the architect to regulate light levels and heat gain. Twin Domes are also available in three curb-mounted models. Write for Wasco Twin Dome brochure with complete test, installation and specification data.



**WASCO  
SKYDOMES**

WASCO PRODUCTS DEPARTMENT

CYANAMID

AMERICAN CYANAMID COMPANY  
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# BIRD KING-TAB ARCHITECT SHINGLES

*roof this church with safety*



ST. ANTHONY DE PADUA CHURCH, SOUTH BEND, IND., Anthony J. Panzica, architect.

**T**HIS HOUSE OF WORSHIP is roofed with beauty and dignity as well as protection. It is another example of the Bird Architect's perfect conformity with architectural design. The color, Royal Ermine, gives a special purity, 170 squares used in a dazzling expanse.

**UNIFORMITY OF SURFACING** in even distribution of jumbo granules is controlled in manufacture, so there is no unsightly application on the site.

**GREATER SAFETY, TRIPLE PROTECTION:** 300 lbs. per square, thick as standard slate; and 3 full layers of protection at every point, with 5" exposure.

**SAFEST FOR FLAT ROOFS TOO:** roofs pitched as low as 2" in 12" are completely safe with this coverage.



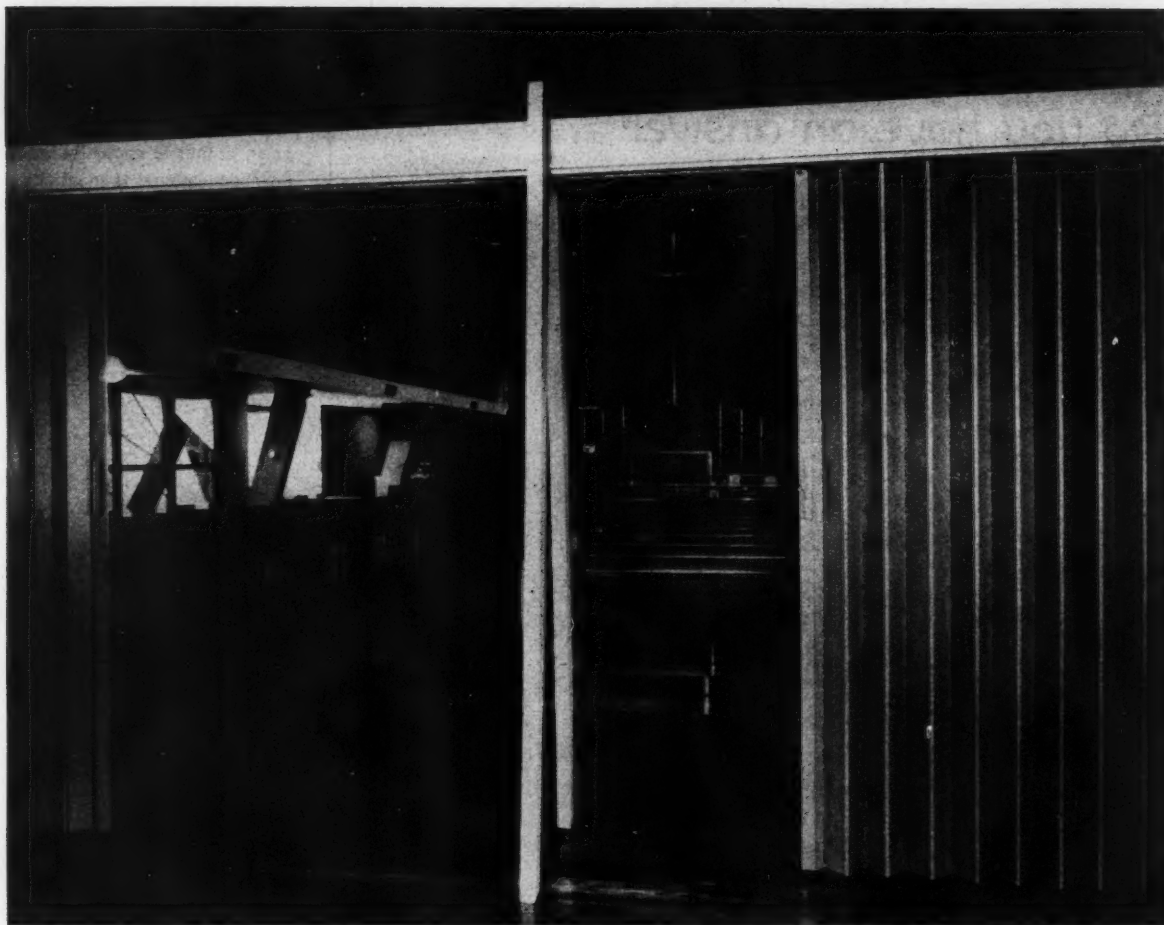
See specifications in SWEETS FILE **8C** or **3C**  
**BI** **BI**

or write BIRD & SON, INC.  
BOX AR-101, East Walpole, Mass.  
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**MOISTURE AND TERMITES A PROBLEM?** Write Bird for details of Bird Termite and Vapor Prevention System





ST. MATTHEWS EPISCOPAL CHURCH, PORTLAND, OREGON ARCHITECT: DONAVAN C. BYERS



## wood folding doors

*and novel ideas attract each other*



### **SOLID WOOD "LAMICOR" PANELS**

are laminated with  
water-resistant, plastic  
glue and faced with  
wood veneer.  
Will not warp.

How would you design a closure without building up to a lofty ceiling? In this case, a beam, struts and PELLA WOOD FOLDING DOORS provided a successful solution. The design latitude of these fine doors runs from their honest wood beauty to their maintenance-free operation. 6 genuine wood veneers are available to reflect color and texture. These, you can specify factory-finished or unfinished. Patented "live-action" steel spring hinging assures effortless operation for even the largest units. Available for any width and heights up to 12'1". Full specifications in SWEET'S. Consult the classified telephone directory for name of your nearest U. S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.

6 FINE WOOD VENEERS • AMERICAN WALNUT • WHITE ASH • BIRCH • OAK • PINE • PHILIPPINE MAHOGANY

PELLA ALSO MAKES QUALITY WOOD FOLDING PARTITIONS, CASEMENT AND MULTI-PURPOSE WINDOWS, ROLSCREENS AND WOOD SLIDING GLASS DOORS



Do you have an answer  
for Mr. Quibble?

Changing educational patterns demand flexible schools with learning spaces equipped for year-round air conditioning under unitary control—as an economic necessity based upon educational productivity for the life of the building.



Mr. Quibble is a well-meaning school executive. He believes in air conditioning and would like to have it in his new school. But he is apprehensive about the opinions of board members and taxpayers. So he is apt to forego this basic requirement for maximum learning and build a school that will be sadly lacking through the coming decades. Only his architect and engineer can show him how to have air conditioning with proper regard for economy and without sacrifice of beauty and utility. The revolution in education is bringing a revolution in schoolhouse design predicated upon a fully controlled year-round environment in every learning space. Mr. Quibble's quandary is a challenge to your designing skill. Nesbitt—with a long experience in the school field—offers a slide film presentation, case studies, cost data, and many other services to help you give Mr. Quibble the right answer.

MORE LEARNING PER SCHOOL DOLLAR

**Nesbitt** AIR CONDITIONING FOR SCHOOLS



Year-Round Syncretizer and Storage Cabinets • Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa.





PELLA PRODUCTS

THE FOCAL POINT OF QUALITY

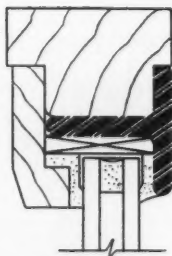


DESIGNER: BILL SELZER,

*Pella*

## wood sliding glass doors

*add a warm note  
to "patio pictures"*

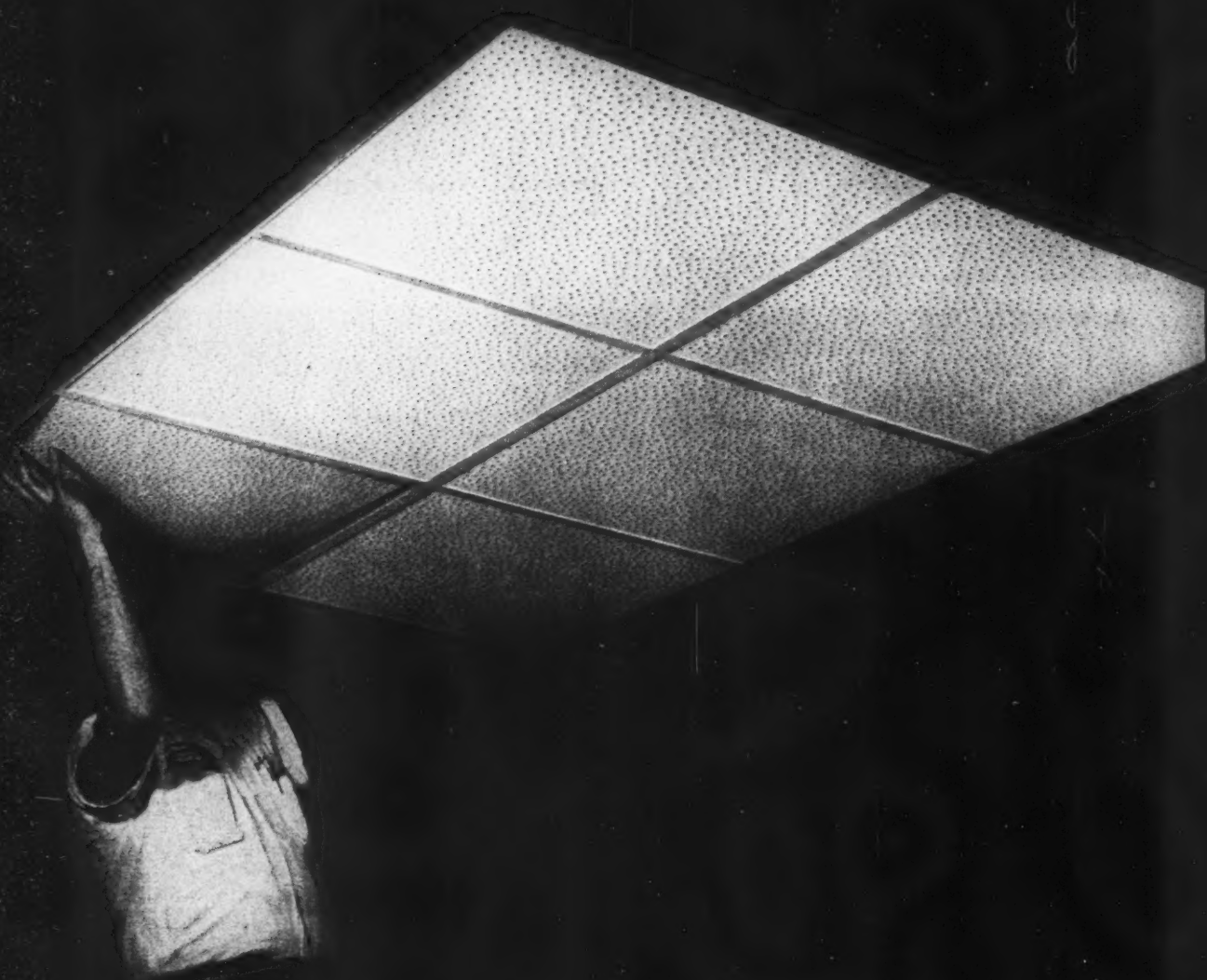


**THE WELDED STEEL T-SECTION**  
on all four sides of the 1-3/4" Ponderosa Pine door panels gives the PELLA SLIDING GLASS DOOR its rugged strength and slim lines.

For framing views of patios, pools and gardens, it's good to know you can work with WOOD. Frames of PELLA WOOD SLIDING GLASS DOORS can be finished or painted to go with any color scheme—interior and exterior. Wood frames plus a combination of stainless steel and wool pile weatherstripping make these doors completely weathertight... prevent condensation. Screens close automatically. Removable muntin bars available—regular and diamond. O, OX, XO, OXO and OXOX in 33", 45" and 57" glass widths. Standard and custom heights. Call the PELLA distributor listed in your classified telephone directory for specifications and literature. ROLSCREEN COMPANY, PELLA, IOWA.

PELLA ALSO MAKES QUALITY WOOD FOLDING DOORS, WOOD FOLDING PARTITIONS, ROLSCREENS, WOOD CASEMENT AND WOOD MULTI-PURPOSE WINDOWS





**ON THE WAY TO ACHIEVING "SPACIAL SILENCE"...with Bestwall Incombustible Acoustical Tile. The "Spacial Silence" principle is based on these elements: the spacial area above the tile, the fully-drilled face, the porosity-controlled membrane on the back. Bestwall Incombustible Acoustical Tile, its gypsum core fortified with glass fibers, provides an acoustical ceiling which combines beauty and high noise reduction with low maintenance cost. It is fireproof, washable, can be rapidly installed, easily removed. Low cost 24" x 24" units, available in plain or textured pure white finish, reflect up to 78% of light without glare. These units, when installed and suspended as specified, insure a noise reduction coefficient of 70. Bestwall Gypsum Company, Ardmore/Pa.**



Field Experience + Customer Needs + Modern Research + Modern Plants = Full Line of Bestwall Industrial Products

Plants and offices throughout the U.S.



PELLA PRODUCTS

THE FOCAL POINT OF QUALITY

*Pella*

## wood casement windows

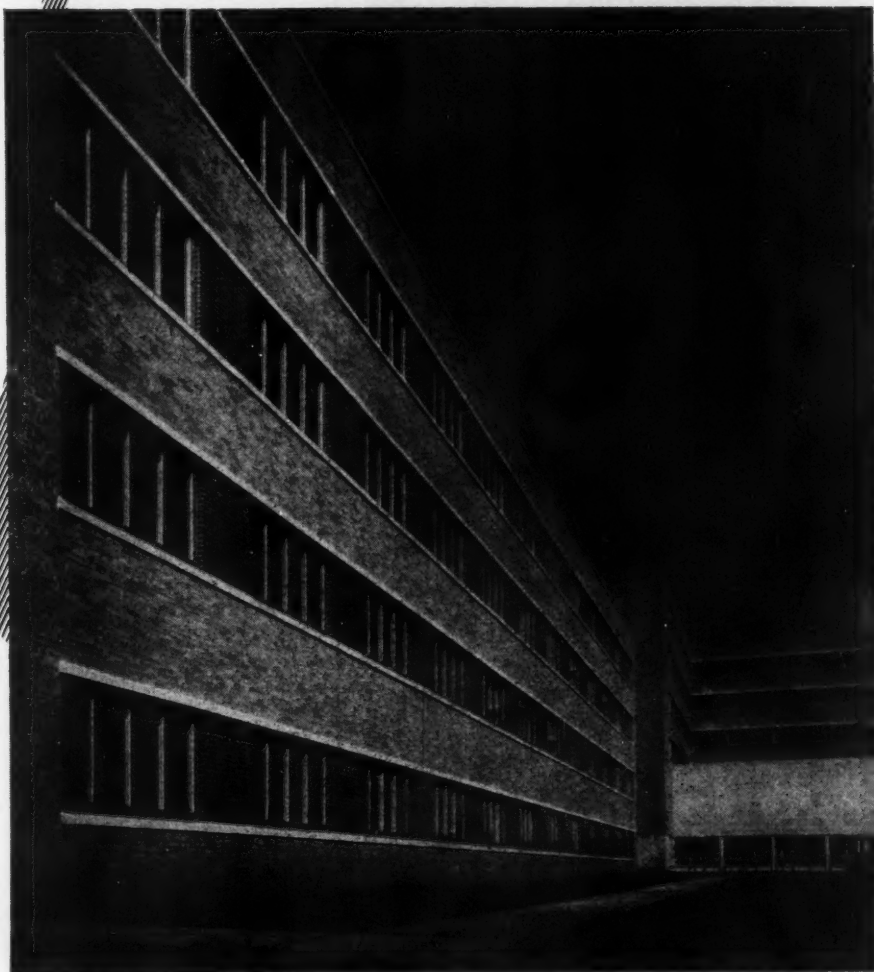
*help you cut your clients' costs*

Self-storing ROLSCREENS and storm panels on PELLA CASEMENTS provide a substantial savings in maintenance for large buildings. Seasonal labor is reduced. Valuable storage space is saved. Wood is still recognized as the best insulating material to surround glass, and the wood in PELLA WINDOWS helps to minimize heat losses. To meet your requirements for good design in fenestration, PELLA WOOD CASEMENTS come in 18 standard ventilating units up to 24" x 68" glass size and 60 fixed unit sizes. Full specifications in SWEET'S or consult the classified telephone directory for the name of the nearest U. S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.

ASBURY METHODIST HOSPITAL NURSES HOME • McENARY & KRAFT-ELLERBE & COMPANY, ASSOCIATED ARCHITECTS



**INSTANT SCREENS**  
describes famous ROL-  
SCREEN®...the inside  
screen that rolls down, rolls  
up and out of sight.



PELLA ALSO MAKES QUALITY WOOD MULTI-PURPOSE WINDOWS, WOOD FOLDING DOORS AND PARTITIONS, ROLSCREENS AND WOOD SLIDING GLASS DOORS



# STEEL 1961




# JOHN STEEL 1899



## in Louis Sullivan's Architectural Masterpiece

"There was never any question of the material to be used. Steel was the proper choice for the modern eight-story addition now in construction on the famous Carson Pirie Scott building in Chicago," says Mr. Harry F. Manning of the firm of Holabird & Root, architects. ■ Designed as a completely steel-framed structure by Louis Sullivan of the world famous "Chicago School" of architects in 1899, the original building has been added to in 1903, 1906 and now in 1961. Each addition has preserved the amazingly clean and modern lines of the original Sullivan design. As in the original conception, the great cellular elevations are bold, exact and perfectly proportioned articulations of the steel frame. Steel, the building material of proven strength, durability and economy has been used again in the latest addition. ■ In the first portion of the structure, columns were formed of a combination of angles and straps of formed plate. Columns in the new section make use of modern, high-strength, wide flange beams utilizing present day steel's far greater economy and far superior carrying capacity. ■ Among architects and engineers the world over, the Chicago School of the late 1800's has long been associated with the invention and mastery of steel framing and the consequent development of today's modern structures. As many point out, the contemporary statements of today are a refinement of the principles developed as early as 1879, the articulated wall taking its power and beauty from the formal possibilities of steel framed construction.

Use  for Modern Construction



## STEEL CONSTRUCTION PROVIDES

**unlimited  
expansion  
potential**

Additions to existing structures are relatively simple, with geometric steel framework repeating or augmenting the basic design of the original building. Joining new steel beams to old in the creation of new bays or even entire wings, is easier and far more economical both of time and money than is the case with most other types of building material.

**design  
freedom**

From the cube to soaring arches and space-spanning domes—from the triangle and the pyramid to tri-dimensional hexahedrons and tetrahedrons. From the simplest of warehouses to highrise office buildings or the complexities of church architecture, steel enhances free expression and architectural creativity.

**and  
strength with  
lightness**

For today's modern steels have great load-carrying capacity—minimize dead load stress—reduce foundation costs—can be fabricated into forms of the utmost lightness and grace while lending rigidity and rugged strength to the structure.



### INLAND STEEL COMPANY

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Wide Flange Beams • Steel Plates • Bearing Piles and Steel Sheet Piling • Ti-Co® Galvanized Sheets • 4-Way® Safety Plate • Enameling Iron • Sub-Purlins

## The Record Reports

*continued from page 94*

### Kling Scholarship Established at Columbia

The Vincent G. Kling Scholarship in Architecture has been established at Columbia University's School of Architecture. The partial tuition scholarship has been made possible through an annual gift to the School of Architecture by members of the staff of the architectural office of Vincent G. Kling, Philadelphia. Mr. Kling was a member of the class of 1940.

The award will be made primarily on the basis of professional promise and financial need to students in the third year or later years of their architectural curricula.

### E.J.C. Study Finds Job Market Up for Engineer Grads

According to a report by the Engineering Manpower Commission of Engineers Joint Council, a decided increase in the postgraduate commitments of engineering graduates of 1961 is apparent, in spite of the recent economic recession. The report summarized the results of a survey based on the response from 138 of the nation's engineering schools representing 16,344 engineering graduates, or a little less than half of the 1961 graduating class.

As of May 19, 84.4 per cent of the engineering graduates, covered by the Manpower Commission's survey, had either secured jobs, decided on postgraduate studies, had been committed to military service or had other definite plans. By June 15, the engineering graduates "committed" had risen to 91.8 per cent. Those in the liberal arts and physical science groups compared favorably with engineering, although the "graduates committed" group among the business and commerce groups was 11 per cent below engineering.

As of May 19, 1959, 83.6 per cent of engineering graduates were committed and, in 1960, 81.5 per cent were committed to postgraduate careers. Of the total, 14.3 per cent of engineers in 1961 were entering graduate studies to pursue advanced degrees in engineering. This contrasts with 9.8 per cent in 1960.

*more news on page 266*

## SPECIFY THE FLOOR FINISH THAT CAN TAKE A POUNDING... SEAL-O-SAN®



Clients appreciate the way Seal-O-San protects their expensive gym floors. This floor finish exposes, yet protects, the natural beauty of the wood. Even the annual rat-a-tat-tat of thousands of basketballs can't erase Seal-O-San protected beauty. This is a hard-nosed floor finish that shrugs off the pounding of gym shoes, street shoes, even roller skates and bridge table legs. So protect your reputation for creating stay-beautiful buildings. Specify Seal-O-San. And send for our free Gym Floor Manual. It answers all important questions about gym floor care.



See our insert in  
Sweet's Catalog,  
13 M/Hu



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HUNTINGTON, INDIANA  
Philadelphia 35, Pennsylvania In Canada: Toronto 2, Ontario

**HUNTINGTON**

... where research leads to better products



# 8 ways to enrich school curricula and improve administration

... through an economical sound-communication system

The console shown here is the central control of an Executone sound-communication system for an average-sized K-8 or secondary school. Located in the General Office, it handles switching, programming, transmission and power amplification for all the services described below—and others that your special requirements may suggest. Its 5-channel capacity eliminates the need for more than a single conduit for signals or communication between any two points in the system. Identical functions are available in a vertical console, for use where office space is at a premium.



## Supplement the teaching program with sound



Classroom audio-aids can give students access to sources of important teaching materials . . . can place each class in closer relation to the school and the world around it . . . can help develop each pupil's critical faculties. Leading educators value the availability of:

**Radio broadcasts:** speeches; music; coverage of special events; interviews; important dramatic presentations; sessions of Congress; etc.

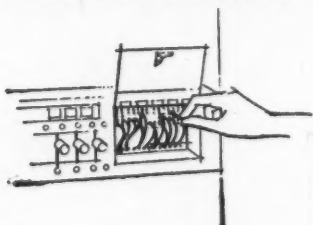
**Recordings:** from an ever-increasing fund of educational material on tape and discs.

**Transmissions** from other parts of the school: student musical programs; sports events; etc.

**Recording and play-back facilities:** for classes in choral and instrumental music; language and speech courses; drama workshops; etc.

All these audio-aids can be supplied by a single Executone classroom reproducer . . . the same instrument that handles time signal, alarm and intercom functions. With a standard Executone system, any combination of rooms—chosen by selector-switches—can receive either of two simultaneous sound transmissions. Reproduction is of unusually high quality. Where recording and play-back are desired, rooms need only be supplied with microphone and tape-deck jacks. Amplification takes place at the main control console.

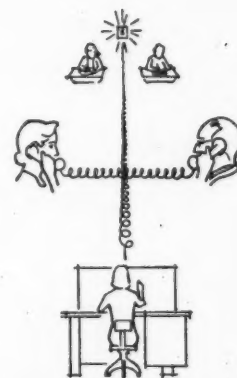
## Save money & space in providing variable time programs



Classes with varying time requirements need no longer be subject to an inflexible set of signals. But conventional time-programming equipment—including independent crossconnect panels, relay racks, classroom buzzers and wiring systems—is bulky and expensive.

The Executone system includes a remarkably compact, easily accessible peg-board programmer—which allows each classroom to be placed on any one of six different time programs within seconds. This function is built directly into either standard console! The costly conventional system is eliminated.

## Speed administrative action: relieve over-burdened staff



Freedom to teach—and to work more productively—is one of the best answers to the chronic shortage of teachers and administrative personnel. Time savings increase in direct proportion to the staff's communication capabilities. Today, these can economically include: A) 2-way electronic voice intercom . . . between the office and any classroom . . . with complete privacy safeguards. B) Private-line room-to-office and room-to-room intercom . . . with call origination from any point. The Executone system offers all the above, providing 2-way remote-reply intercom through each classroom speaker . . . optional private-line handset communication using an independent channel carried by the same wiring.



## Preserve student discipline during unsupervised intervals



When teachers must leave their classes, the maintenance of discipline usually depends on the presence of a substitute. Faculty members may now be relieved of this non-productive extra duty. Unattended students can be monitored from the Office—through the Executone speaker—and notified by its open-line signal light that they are under remote supervision.

## Control student transportation

Teachers find it especially difficult to keep order—and prevent delays—when restless students must await loadings of homeward-bound school buses. This condition is relieved when children are permitted to play freely—until summoned to the loading area in proper groups and directed to their buses.



This can be achieved through an inexpensive adjunct to the Executone system: a microphone jack at the loading area and speakers at loading and congregation areas. Both microphone and speaker wiring run in the same conduit. The amplifiers at the main console are utilized. Any available microphone can be plugged in at dismissal time.

## Preserve the continuity of classroom activities



Communications in the modern school go a long way toward assuring uninterrupted class activities. But care must be taken that the facilities which make this possible are not themselves a disruptive influence. This is the case where calls make it necessary for teachers to drop what they are doing, to approach or handle equipment . . . or where a call interrupts a sound transmission.

Executone removes both of these contingencies. Through-the-speaker calls, for brief conversations, can be answered by the teacher from any point in the room—without raising her voice. And use of the optional handset channel for longer conversation prevents interference with concurrent sound programs.

## Prevent confusion and panic in emergencies

Leading administrators have long felt the need for greater control of student bodies in emergencies. They seek alarm signal facilities to augment standard fire alarm systems—for such special contingencies as air raids. To control student movements in critical situations, they wish to make it possible for any staff member to broadcast voice instructions—without having been trained in the use of sound equipment.



In the Executone system, the same components used to produce time signals will also provide supplemental alarms. Executone furnishes duplicate signal generators—for fail-safe standby duty. For follow-up voice instructions, after an alarm, a staff member need only touch the 'emergency' bar at the Executone console. This overrides all other transmissions . . . allows him to speak immediately to the entire student body.

## Provide quality-controlled sound for audience activities

No audience facilities are so intensively used as those in the modern school. Auditoriums and gyms serve not only during the school day—but also for adult and community activities . . . for socials and special events. Sound reinforcement equipment must be designed to high standards. And controls must be efficient. Conventional microphone mixing units—because of A-C power, ventilation and space needs can seldom be situated where they do most good.

An Executone system provides not only sound reproduction of highest quality, but also new flexibility in the location of controls. Transistorized preamplifiers and mixers are compact enough for concealment anywhere . . . have no special installation requirements.

Executone manufactures School-to-Home telephone equipment for shut-ins.

Your Local Executone Organization  
Offers You Six Stages Of Service

- ① THOROUGH, PROFESSIONAL CONSULTATION OR SURVEY
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**Executone**

COMMUNICATION and SOUND SYSTEMS

THIS COUPON WILL BRING YOU IDEAS . . .  
INFORMATION . . . ASSISTANCE — WITHOUT OBLIGATION

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415 Lexington Avenue, New York 17, N. Y.

- ☐ I would like my local Executone Systems Engineer to call.  
☐ I would like detailed literature on sound and communication systems for schools.

Name \_\_\_\_\_

School \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

In Canada: 331 Bartlett Avenue, Toronto



# Factory Balanced — Ready to Use

## NEW ANEMOSTAT

### Mechanical Constant Volume Boxes, Type HV

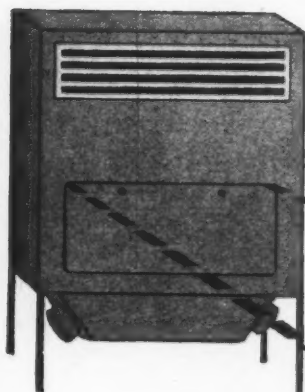
Designed and developed for today's high velocity dual duct air conditioning systems, the Anemostat single motor HV mixing box is unexcelled for material, quality and performance. Pre-balanced and factory calibrated to operate consistently within  $\pm 5\%$  of required air quantities, the Anemostat HV unit is ready for immediate operation upon installation.

The Anemostat HV mixing box requires **only one** pneumatic operator; the mechanical constant volume device\* does the rest. This all metal device offers these unique design and construction features:

- 1 Built to last a life time, with corrosion-resistant parts, it requires no maintenance.
- 2 Allows for simple field adjustment to meet changing air requirements.
- 3 Operating engineers don't have to worry about replacing worn fabrics, nor is there any perforated metal to clog and impede efficiency.

The Anemostat HV mixing box is available for a wide range of air capacities. Write for Anemostat Bulletin Mech-70 today.

\*Patent Applied For



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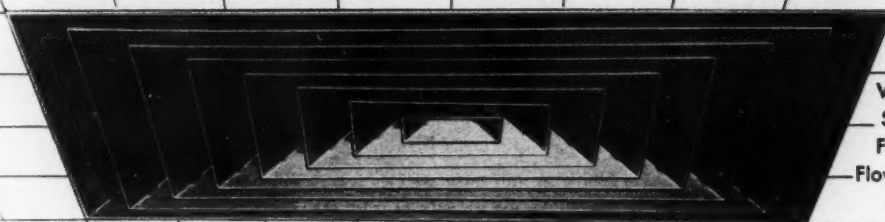


AC1392



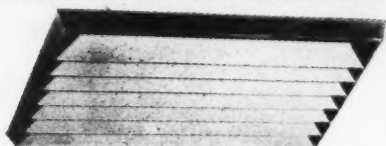
**NOW! by Waterloo - Anemostat**

# **THE FIRST ALL EXTRUDED ALUMINUM TYPE D DIRECTIONAL DIFFUSER**

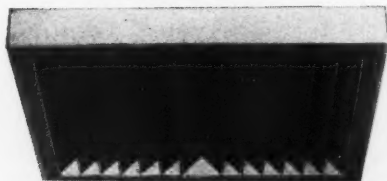


Waterloo  
Style DE  
Four Way  
Flow, Snap-in  
Frame

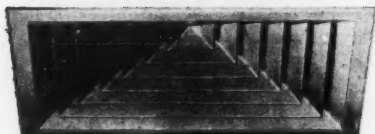
## **SQUARE and RECTANGULAR DESIGNS**



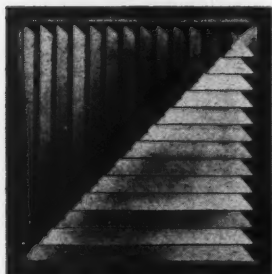
Waterloo Style DM One Way Flow  
Bevelled Frame



Waterloo Style DD Two Way Opposite Flow  
Drop Collar Frame



Waterloo Style DF Three Way Flow  
Flange Frame



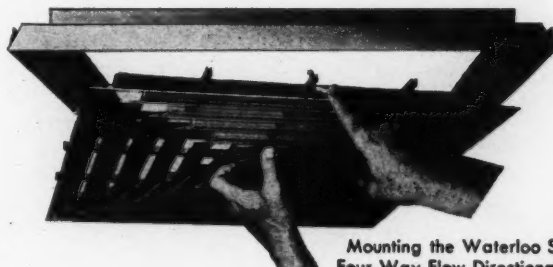
Waterloo Style DL Two Way Corner Flow  
Lay-on Frame

## **★ EASIEST TO INSTALL**

**★ ONE-THIRD THE USUAL WEIGHT**  
because of aluminum construction

**★ LONG-LASTING**  
All extruded aluminum

**★ 5 FRAME STYLES • 14 CORE PATTERNS**  
All cores removable and interchangeable



Mounting the Waterloo Style DE  
Four Way Flow Directional Diffuser  
Snap-in Frame

## **DESIGNED BY WATERLOO**

... pioneer in development of air diffusion equipment  
in EXTRUDED ALUMINUM

**PERFORMANCE PROVED BY ANEMOSTAT**  
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ON REQUEST.



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WR-124





Economically and simply, wood works beautifully in large moderns, too. The planked decking and sturdy railing of the porch, the interesting geometric patterns of wood-framed windows and panels, the smooth plank-and-beam overhang of the roof . . . all complement one another perfectly, suit their site naturally. Architects: Smith and Williams, A.I.A.



*For homes that endure structurally, decoratively*

# find the better way with WOOD



Beveled siding and louvered shutters create horizontal shadow lines that bring this familiar New England design closer to the ground. The shingled roof, arched breezeway further champion wood's charm.

Whether conventional colonials or unusual contemporaries, homes made of wood are traditional favorites . . . for many reasons. For instance, wood's wonderful workability fulfills any dimensions in your design, any economies in your planning. Its beauty is apparent in a weathered shingled roof or a stained peg-planked floor. The inherent strength of wood is a hidden but known value in every supporting member throughout the house.

Wood's acoustical qualities help tone down sound from room to room. Its natural insulating characteristics help retain comfortable temperatures from season to season. Properly applied, wood's diverse grains and tones harmonize perfectly with materials of every kind. Correctly cared for . . . it has the ability to mellow with age, the durability to shelter generations. For more information on designing with wood, write:

**NATIONAL LUMBER MANUFACTURERS ASSOCIATION**  
Wood Information Center, 1319 18th St., N. W., Washington 6, D. C.

*for freedom of design, look to wood*



At home in the hills, this contemporary extends its warm welcome with lengthy laminated members and solid crossbeams over an informal patio . . . open to the sun on one side, closed for shelter on the other. Note the strength in the vertical lines of board and batten siding. Designed by Cliff May.





## BORDEN ARCHITECTURAL DECOR PANELS

Now Borden brings a new building component to the architect—durable light-weight aluminum panels which can be custom-styled in an infinite variety of forms and designs. For example, the extruded type shown here can be had with design punchings of squares, circles, ovals or combinations of curves and straight lines.

The new Architectural Decor Panels by Borden are an extremely flexible medium, allowing the architect a rare freedom of expression in designing facades to blend with the nature of the building, its setting, and the preferences of his client. The dramatic effects achieved with

this new material are being discovered daily; additionally, these panels are unexcelled for sturdiness, economy, ease of handling and installation, and ventilation.

Not limited to facades, the Borden Architectural Decor Panels are used as interior partitions, grilles, window guards, stair rails, doors, entryways, sunshades, and are especially adaptable in the refacing of existing buildings.

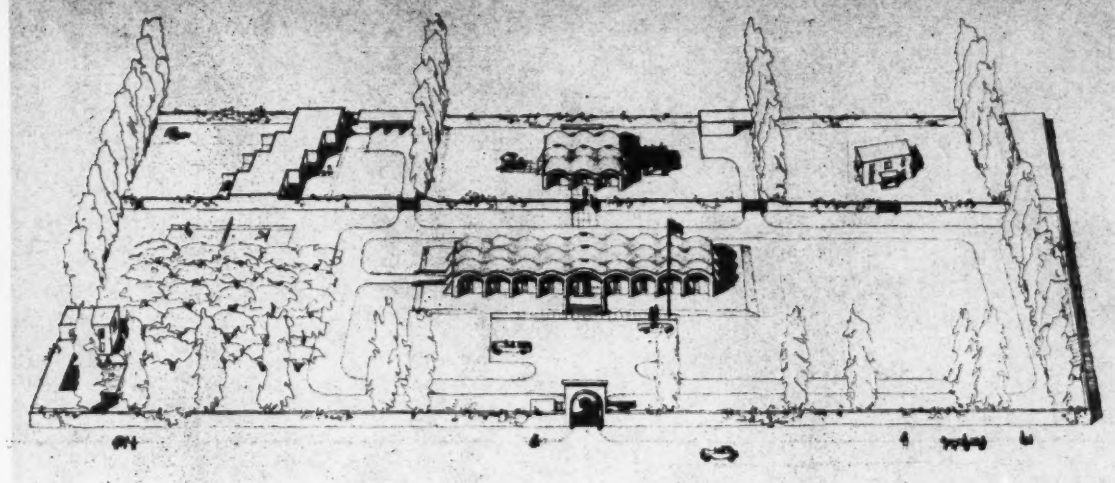
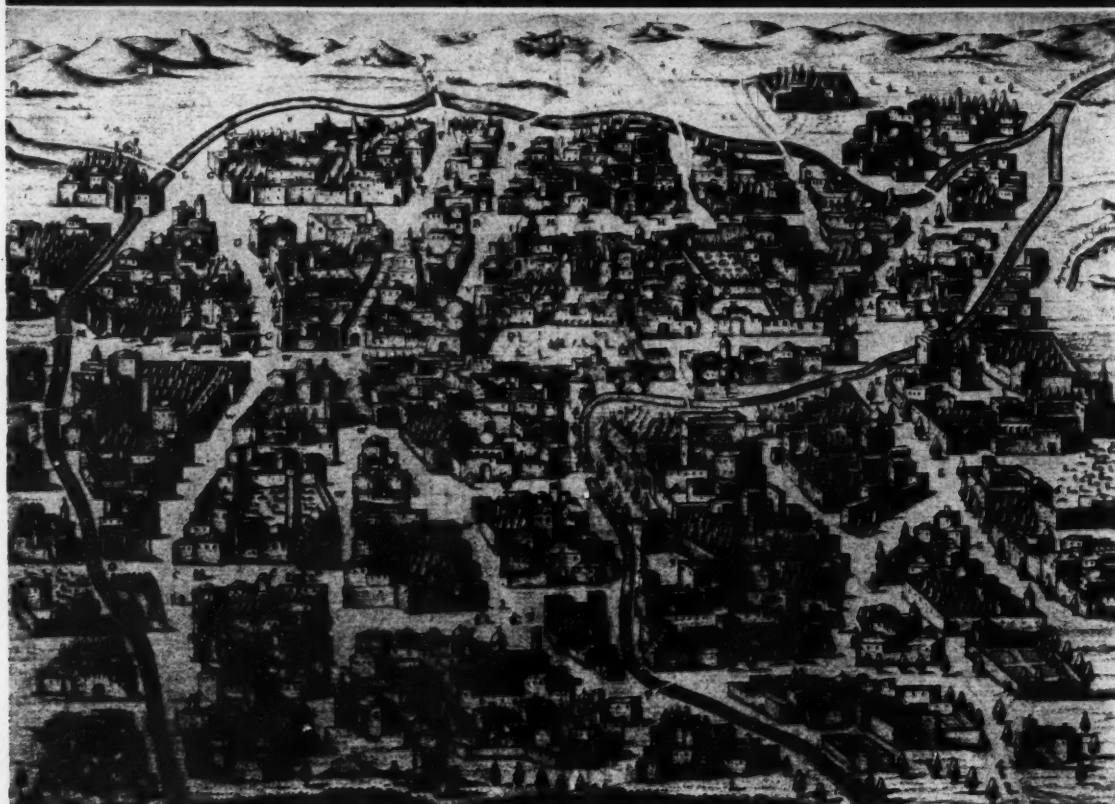
Write today for our folder on Borden Architectural Decor Panels.

*another fine product line of*

## BORDEN METAL PRODUCTS CO.

MAIN OFFICE: 822 GREEN LANE, ELIZABETH, NEW JERSEY • Elizabeth 2-6410  
PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS



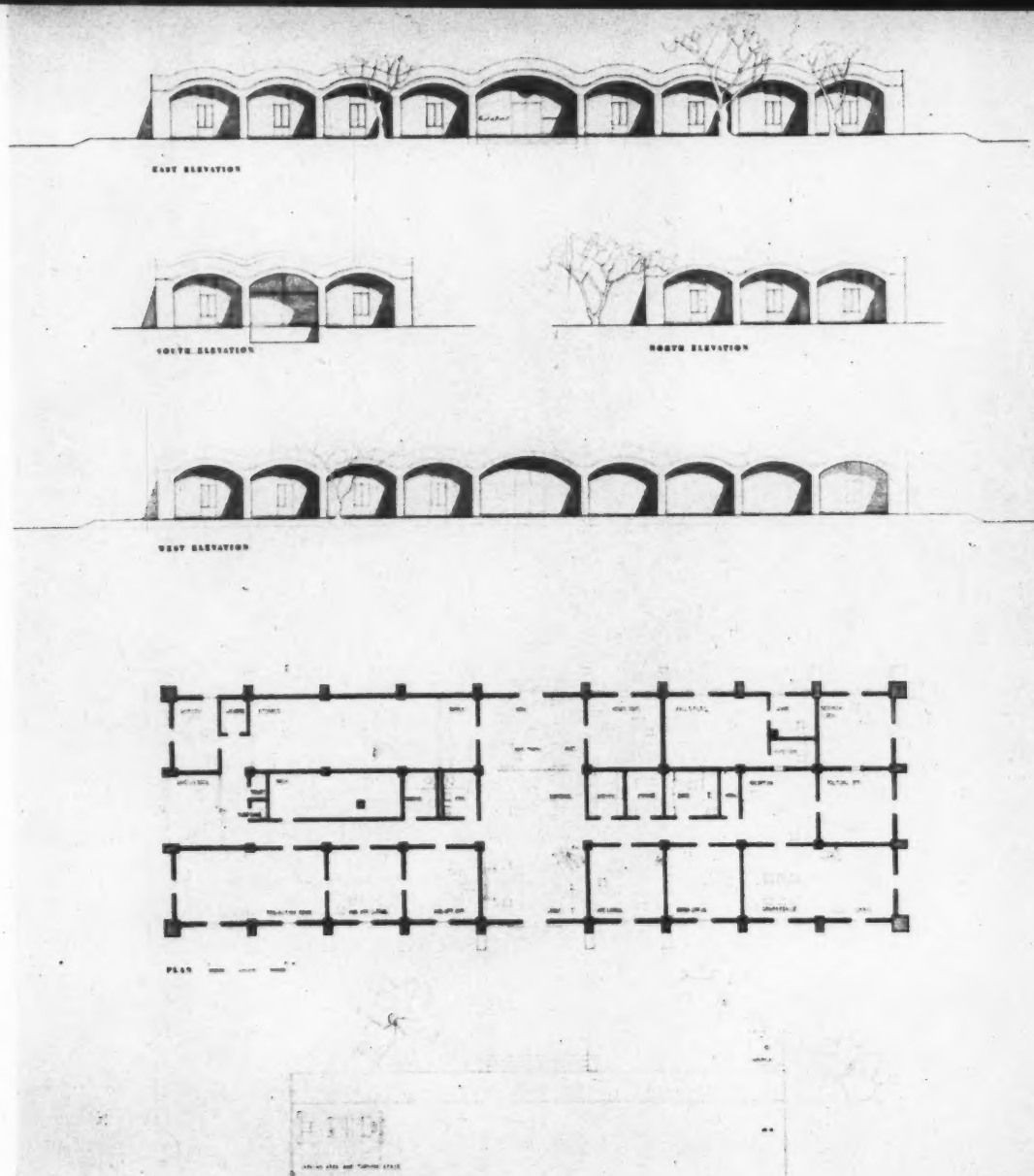


Project drawing of the United States Consulate for Tabriz, Iran contrasted with old engraving of a Persian city. The consulate lies within a walled compound as do most of the buildings in the Persian city, its roofs are domed or flat as in the old city, but while the old compounds in the engraving were crowded and asymmetrical, the new one is spacious with a major axis, not unlike the more sophisticated Persian design of palaces and gardens. Office building is at the center of the compound on axis with the consul's residence. Staff apartments are at upper left

## QUIET ARCHITECTURE OF EDWARD LARRABEE BARNES

Quiet architecture, that neither startles nor asserts,  
by an architect uniquely concerned with the timeless qualities of buildings . . .  
environment, material, light, shadow and scale





Office building

## Domed and Walled United States Consulate for Tabriz, Iran

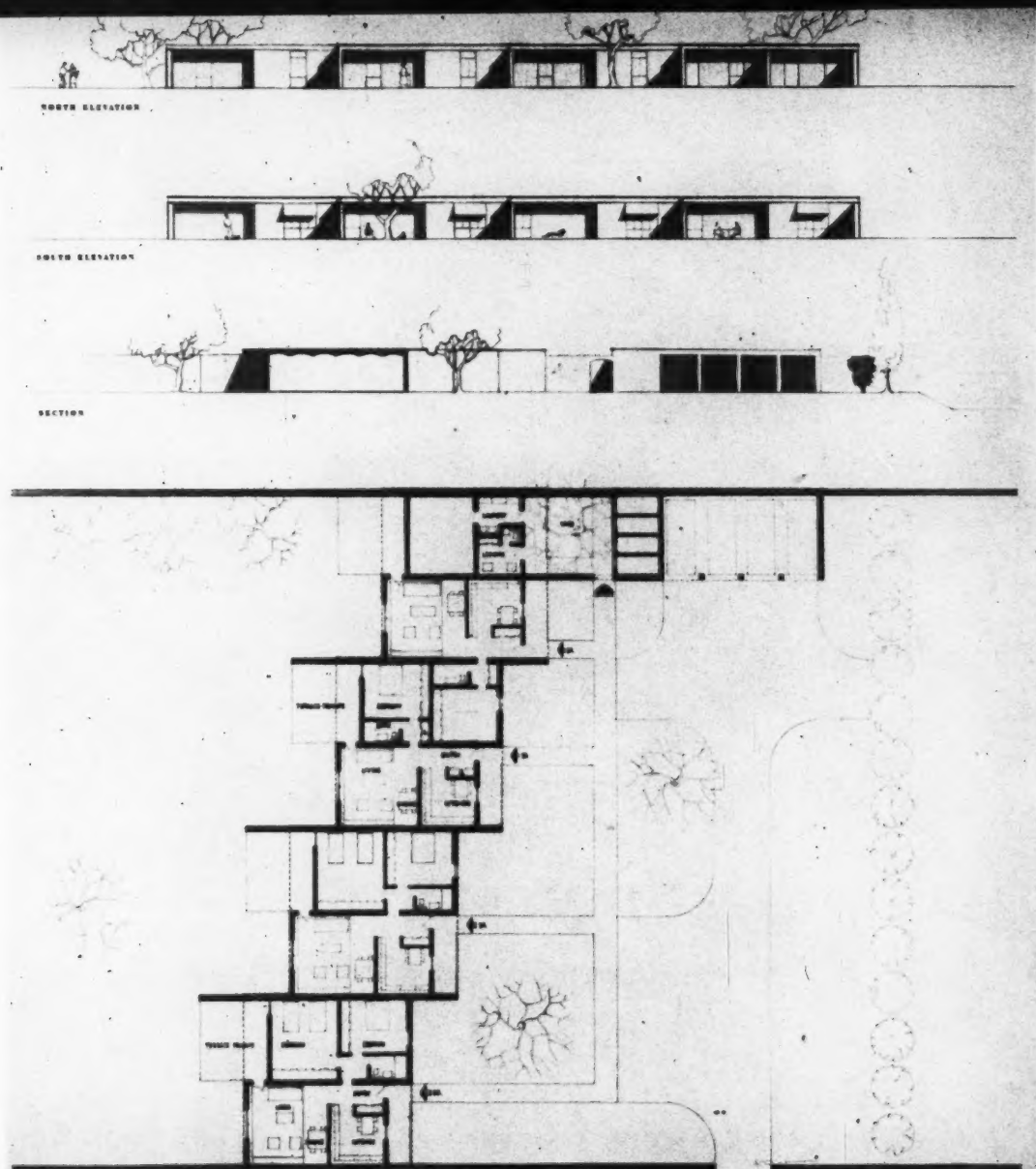
ARCHITECT: *Edward Larrabee Barnes*  
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger-Associates*  
MECHANICAL ENGINEERS: *McGuinness and Duncan*

Architect Barnes has said: "There must be a strong architectural idea behind every project. It is not enough to have a decorative, or historical or mathematical concept. An architectural idea is an expression of life in the building." For the Tabriz consulate, about to be constructed, the idea grew from the native way of building, basically a system of mud covered brick walls and domes, within walled compounds and inner walled gardens.

The United States Consulate Compound lies on the outskirts of Tabriz, near the Russian border. It was once a farm with an almond grove, and reservoir and irrigation system. The old outer brick wall is retained and the compound is further divided with inner walls, and rows of poplar trees so that each of the major buildings; the office, the consul's residence, the staff apartments, and existing house is given a court with its own landscaping.

The office building, like the Persian bazaars, is a cluster of brick domes. There is a strong discipline

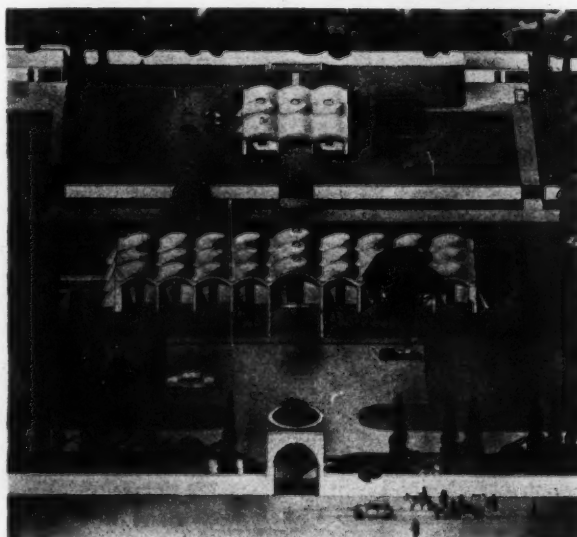




Staff apartments

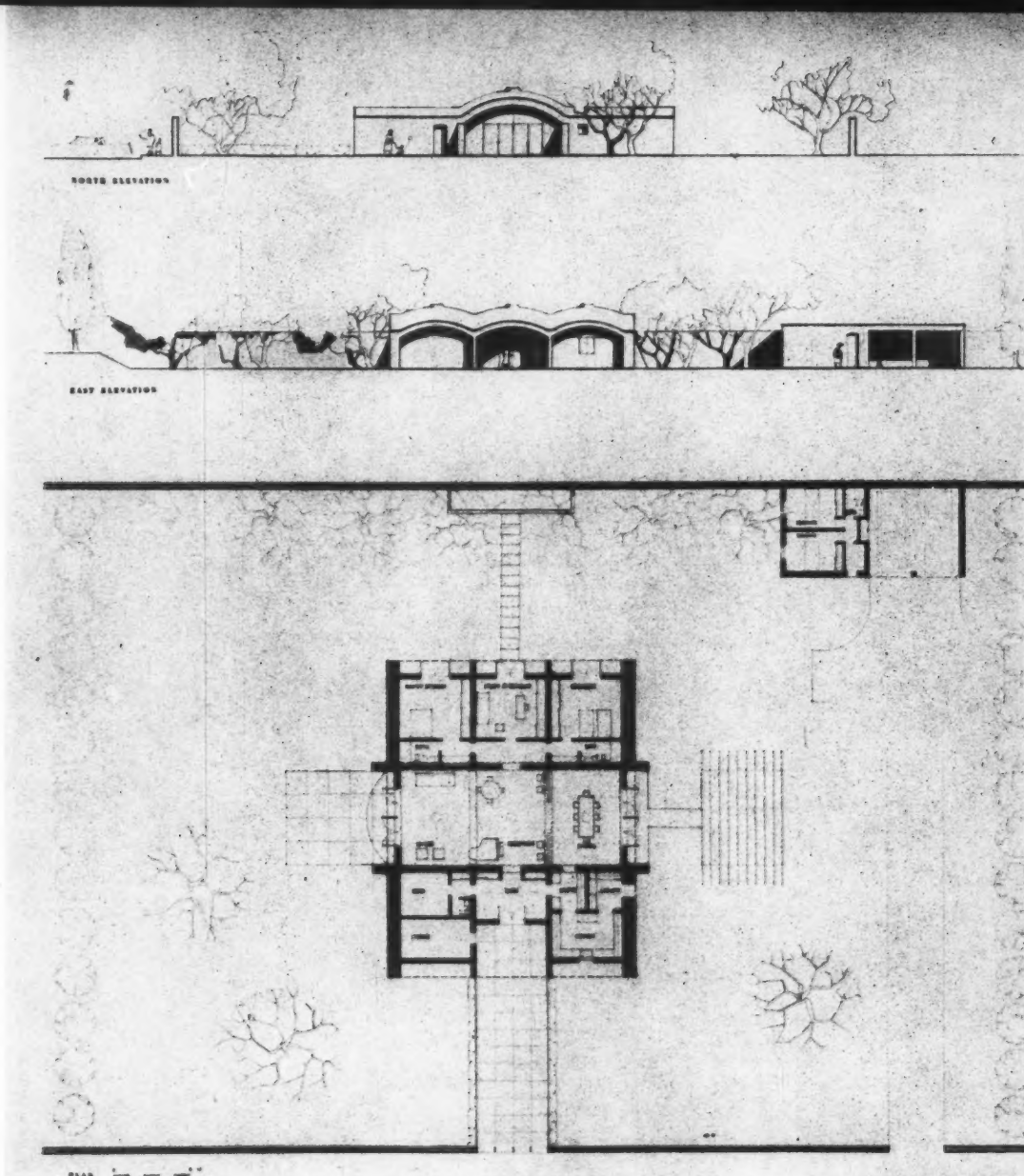
in plan and structure. The thin brick domes are supported on ribbon arches and brick columns. The thrust of the peripheral domes is carried to the ground in sloping buttresses. Infilling walls between the columns are non-bearing (like any modern office building). The domes over the lobby are elliptical, providing greater height and span. Inside rooms are lit with an oculus skylight at the center of the dome. The entire structure is brick, the principal Persian building material since Old Testament days. It is an architecture entirely of compression. The tradition, in Iran, is to cover the brick with a mud, or plaster, or, in the case of the mosques and palaces, with ceramic tile. Here, the entire structure is stuccoed white on the exterior and plastered on the interior. Tabriz, as a city, is mud brown. Once inside the outer compound gate of the Consulate, all architectural surfaces will be white.

The consul's residence has three elliptical domes abutting six barrel vaults. The roof forms slip into



Office building in foreground, consul's residence beyond





Consul's residence

each other. As in the office building, a formal plan coincides with a formal structure. The house is planned for formal receptions, with axial relationship to the office building and garden vistas.

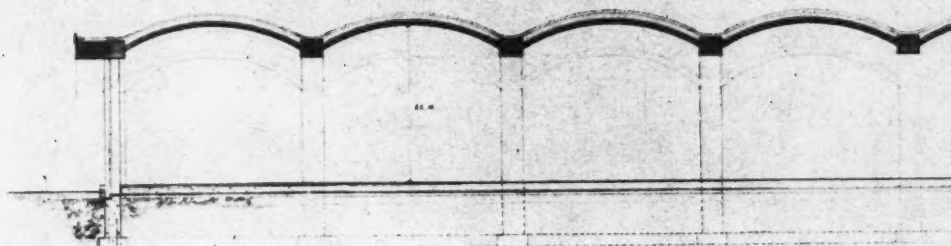
The staff apartments zig-zag to provide separate little outdoor terraces, all within a private garden. The roofs are flat-supported on brick jack arches on steel beams.

The structural details show the thin shell dome, the ribbon arch, the elevation, and plan. Because the mortar is sticky and paste-like, known locally as "gatch", domes up to 16 and 20 ft in diameter are built without form work or centering by spiraling in from the supporting structure. The same is true of the barrel vaults. Each successive arch of brick is glued to the succeeding one until it is completed and can take its own thrust. One modern structural refinement; the poured concrete beam around the periphery. This beam rings the building and binds it together to withstand earthquake crumbling.

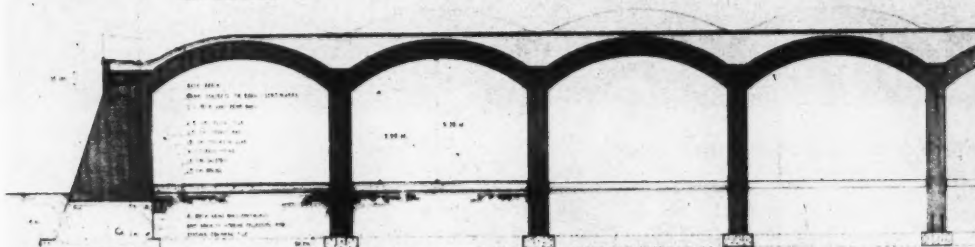




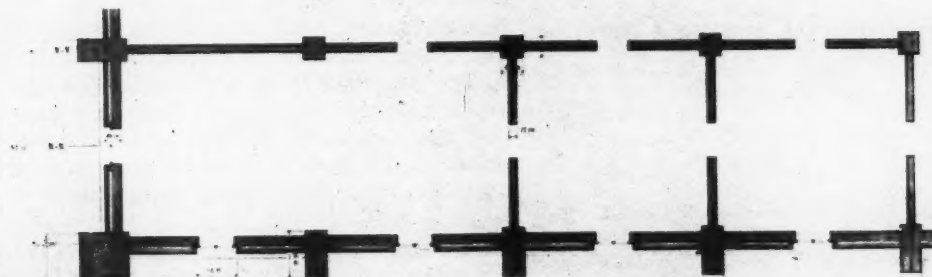
ELEVATION



SECTION 1-1



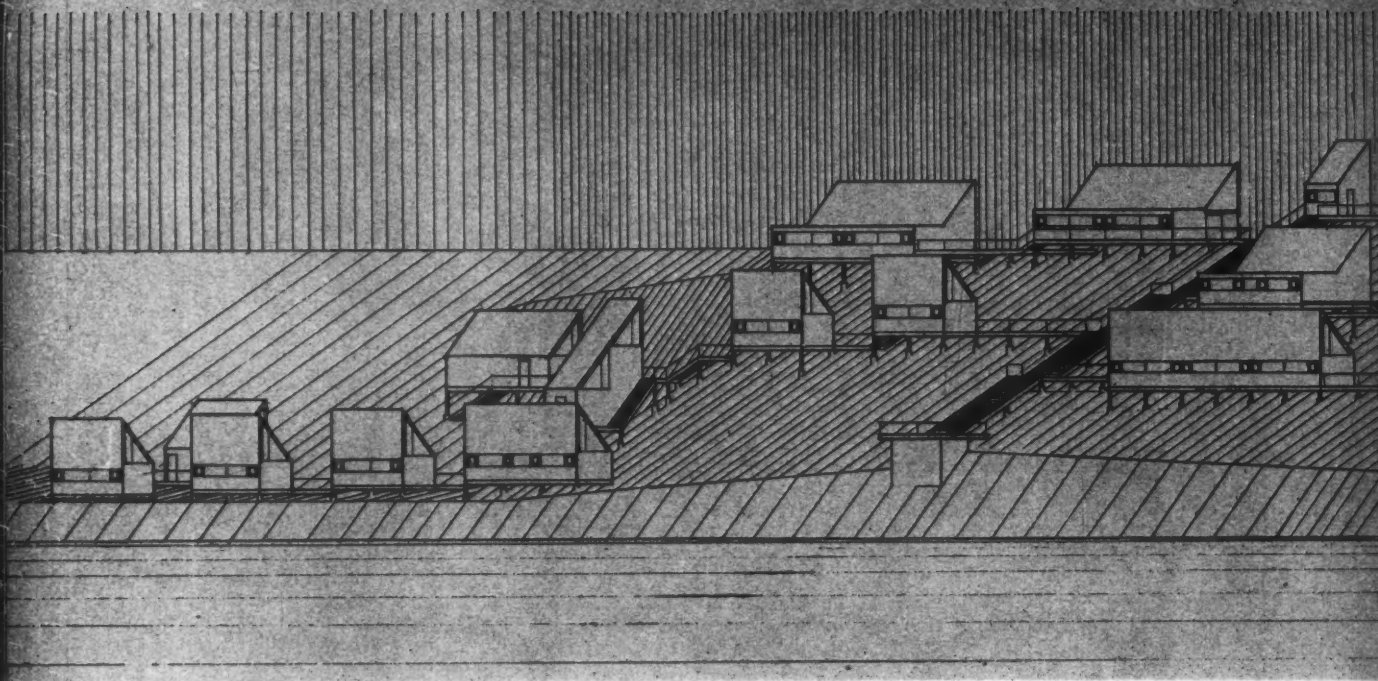
SECTION 2-2



Below: section through center living, reception and dining space in consul's residence. Office building in distance







*Quiet Architecture of Edward Larrabee Barnes (cont.)*

## Twenty-four Roofs, Same Pitch, Shelter Arts and Crafts Camp

NAME: Haystack Mountain School of Arts and Crafts

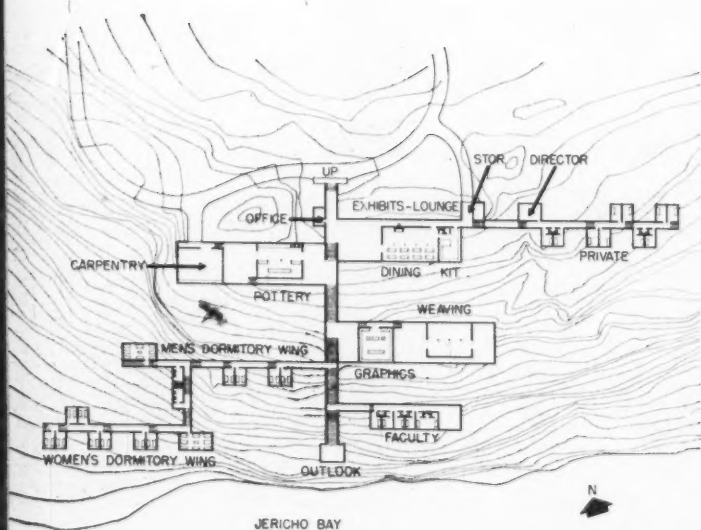
LOCATION: Deer Isle, Maine

STRUCTURAL ENGINEERS: Severud-Elstad-Krueger

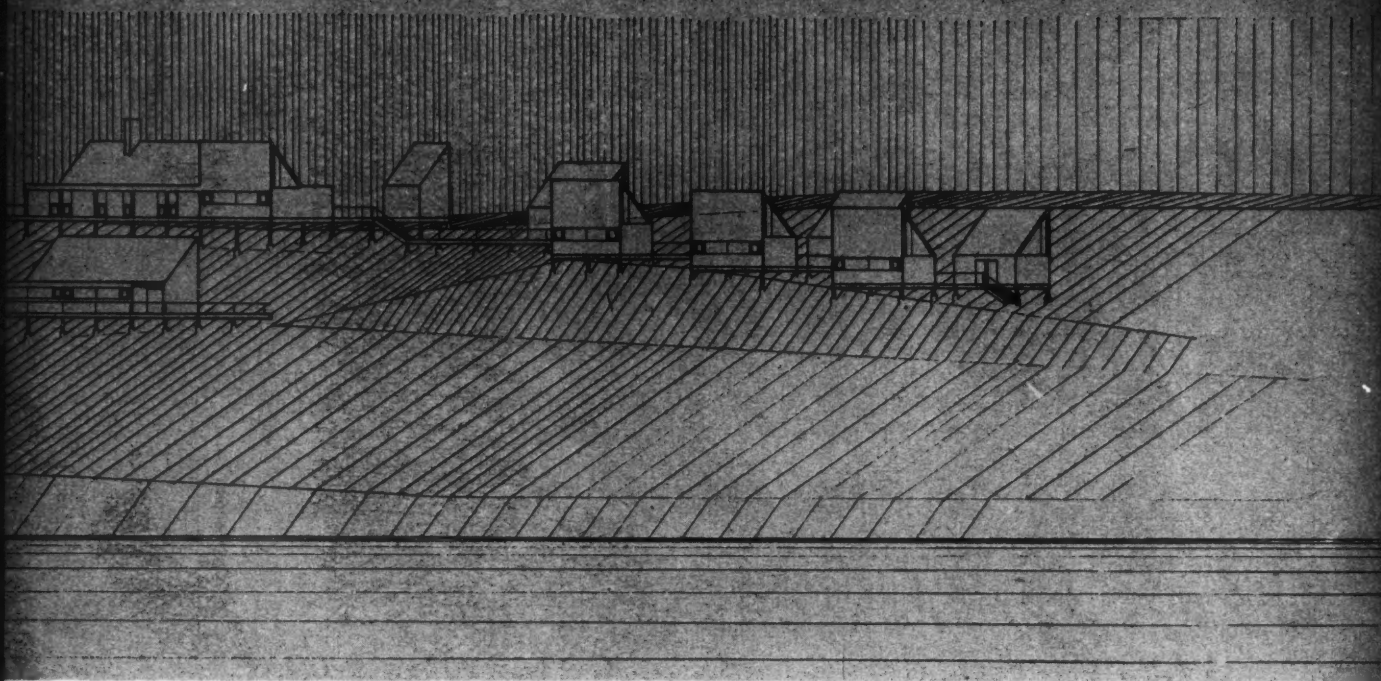
In discussing the repetitive vocabulary of this art camp, Barnes said: "There is nothing esoteric about architectural ideas. They can be drawn on the backs of envelopes. A flight of steps to the sea. A banked garden. Such ideas are at the root of every job. They formalize space and movement through it. The important thing is to express the idea clearly and see all the implications. Structure must be direct and consistent. Elimination is as important as elaboration. There is no better way to do architecture than to have a strong architectural idea and be true to it."

The Haystack School of Arts and Crafts is a summer community of 80 students and faculty who work and live on a lichen-covered granite slope looking south to the sea. A main flight of steps runs down to the shore, and branching walkways and decks link the work shops and cabins together. Big studio windows point up to the trees. Ribbon windows look out to sea. The construction is balloon frame. The walls and steep tilted roofs are shingled. Already all the wood is turning silver like a Maine fishing village.

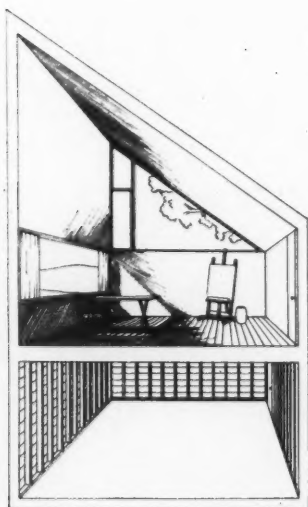
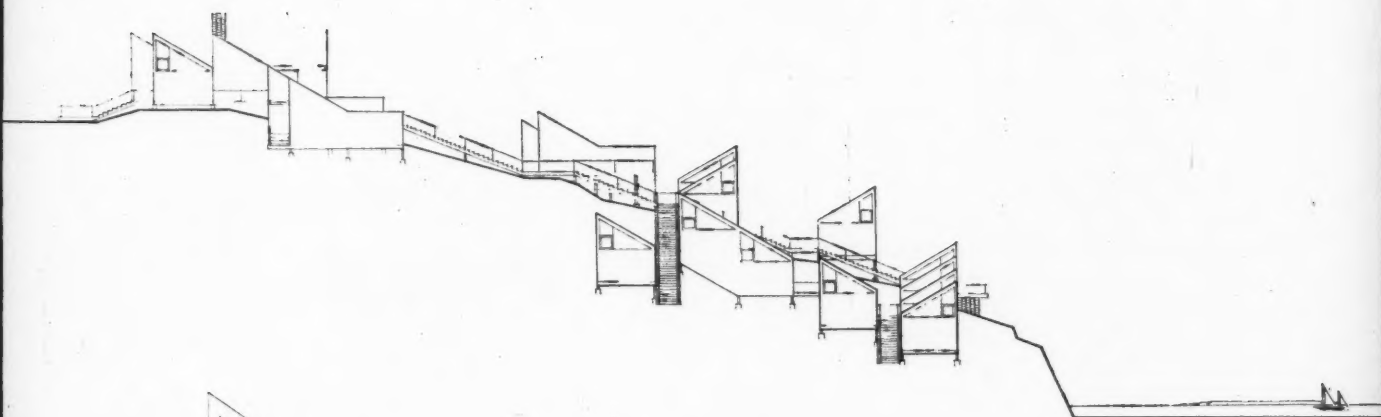
The approach from the road is over a slight rise to a crest of rock 90 ft above the sea. Straight ahead is the main stair down. The first deck serves as a sort of "Town Square", a place to gather and eat outside the dining hall. The four shops: pottery, carpentry, weaving and graphics; each have generous teaching decks. White canvas covers are planned for partial shade. Sleeping quarters vary from the faculty house with its own living room and deck to dormitories and individual cabins. Note the wash house stepped downhill under a continuous roof.





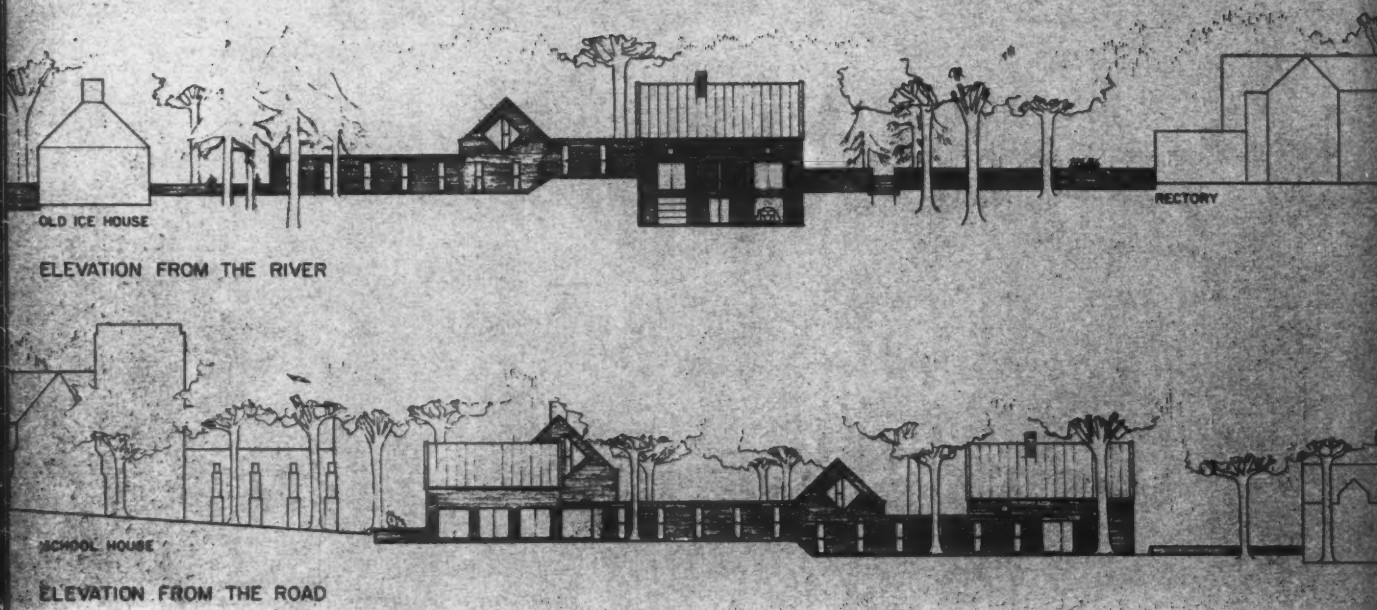


Diagonal elevation from water



The prototype was this studio designed by Barnes for Robert Osborn in 1951





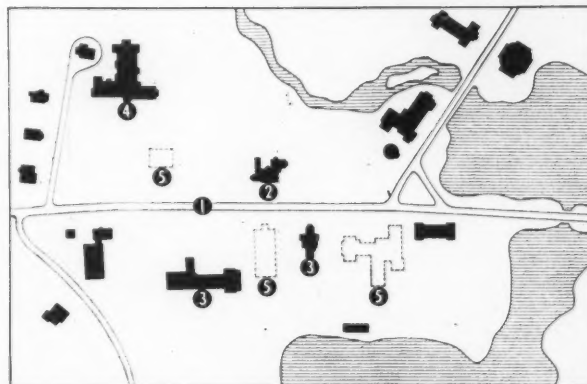
*Quiet Architecture of Edward Larrabee Barnes (cont.)*

## New Dormitories Located to Redefine Campus Space

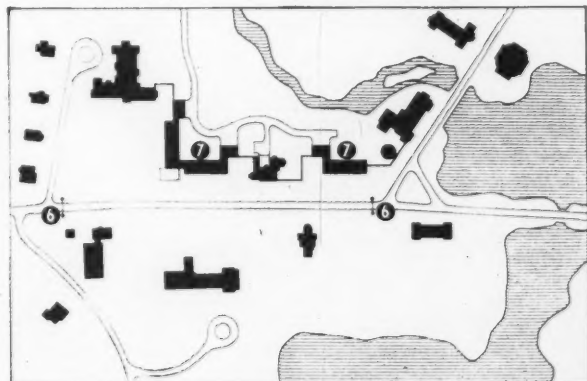
Years ago this school was built along a country street. With the passing of time many of the oldest buildings have been demolished and construction has taken place on the campus periphery. These new dormitories will reverse the trend and reinforce the school center. They connect to a Gothic school house, the Victorian rectory, the old cylindrical ice house. Across the old street they face the old chapels and the pond. New service roads and gates made it possible to keep through traffic off the old street.

In scale, the new buildings are low. The boys' rooms are all on the ground floor in a continuous ribbon-like structure which steps down at intervals to follow the sloping street. The masters' houses and apartments rise occasionally in three-story blocks and pent houses perched above the boys' rooms. The prototype for the basic concept is the University of Virginia where the one-story student arcade steps downhill broken by two-story faculty houses. Low retaining walls form little entrance squares that link the new buildings to the old. The effect is that of a continuous garden wall running along the street with the skyline broken by the masters' quarters with their pitched roofs and studio windows looking up to the trees. The material for the walls, terraces, corridor floors and outside walks is red brick with dark mortar. The flat roofs have brick red gravel. The pitched roofs are oiled copper.

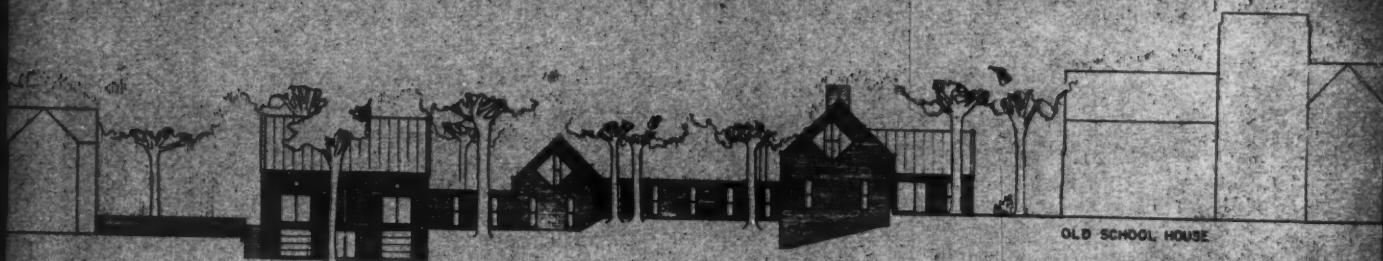
NAME: *Saint Paul's School Dormitories*  
 OWNER: *Saint Paul's School*  
 LOCATION: *Concord, New Hampshire*  
 STRUCTURAL ENGINEER: *John Mascioni*  
 MECHANICAL ENGINEER: *Arthur Trombly*  
 CONTRACTOR: *E. W. Howell Co.*



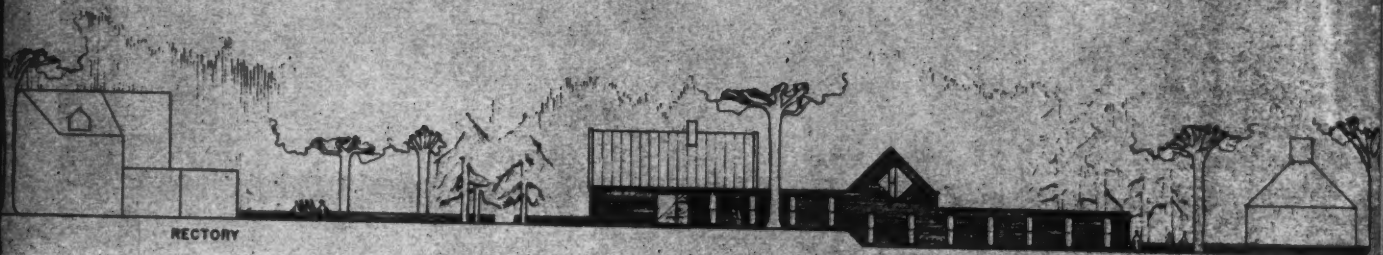
- |                 |   |
|-----------------|---|
| 1. OLD STREET   | 5. OLD BUILDINGS REMOVED OR TO BE REMOVED |
| 2. RECTORY      | 6. GATES CLOSING OLD STREET               |
| 3. CHAPELS      | 7. NEW DORMITORIES                        |
| 4. SCHOOL HOUSE |   |







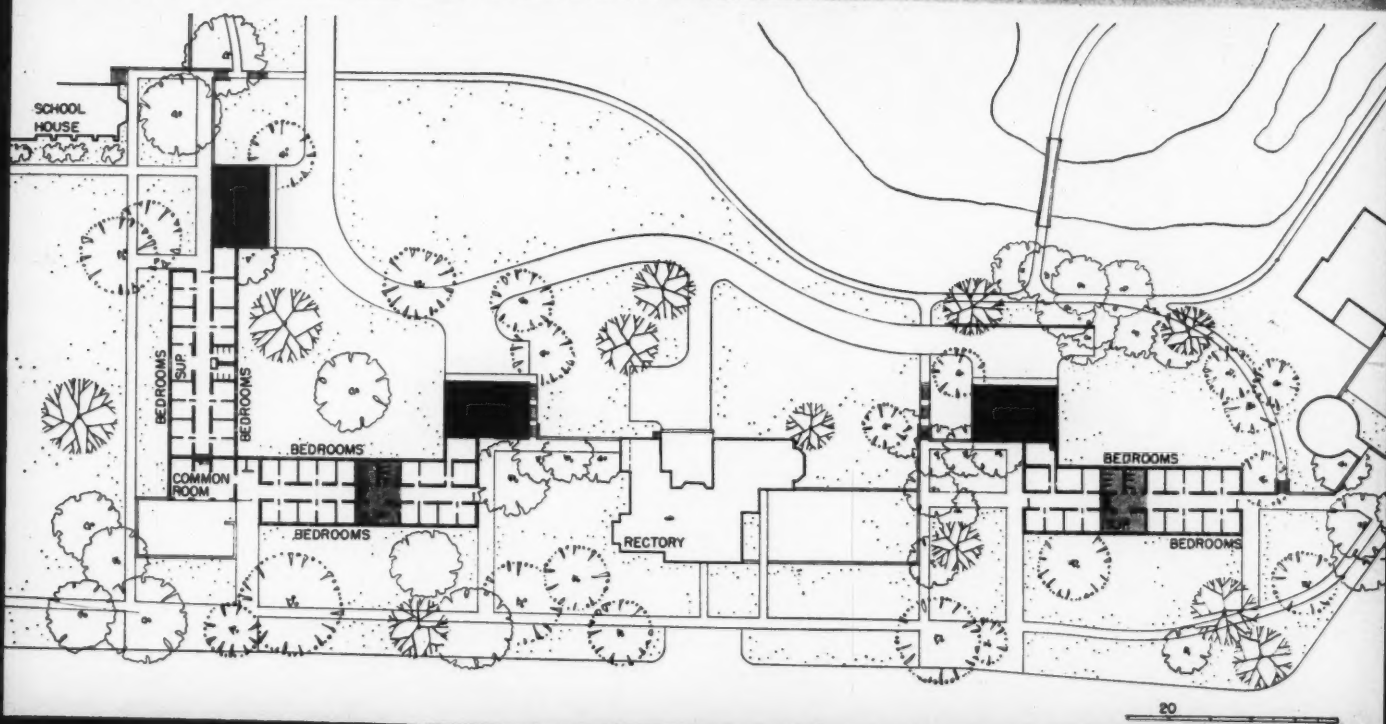
OLD SCHOOL HOUSE



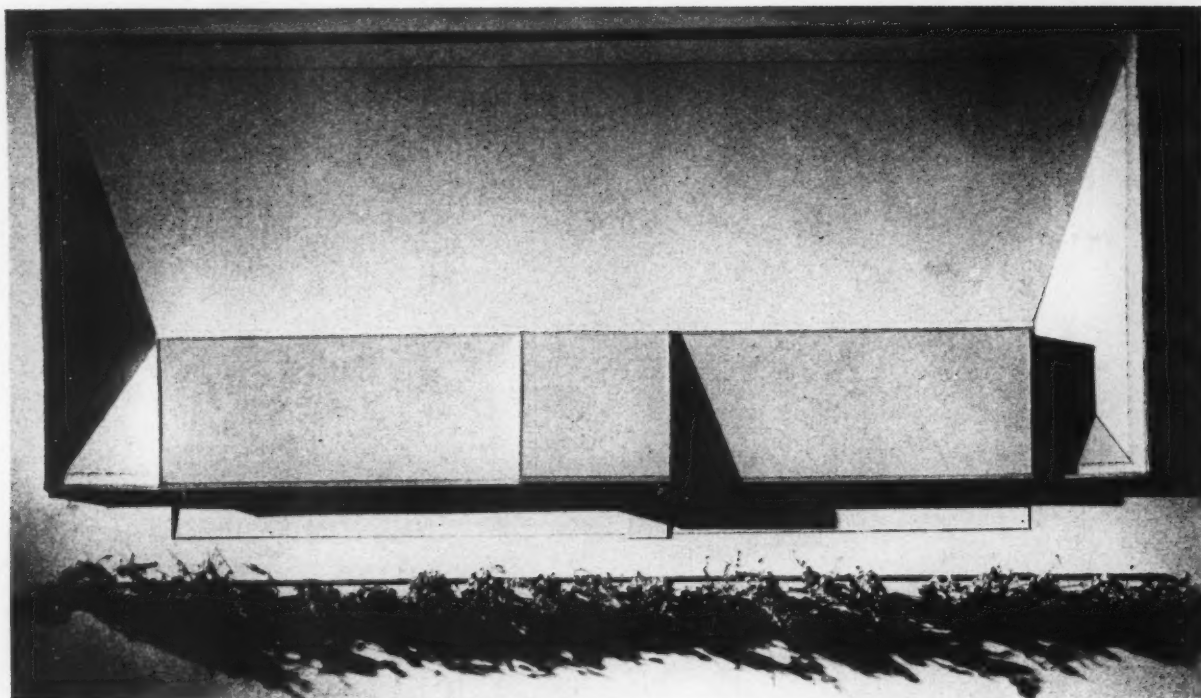
RECTORY



OLD ICE HOUSE







Photograph looking directly down upon model showing dormitory roof and planes of sloping lawn

## Sloping Lawn and Retaining Wall Enclose Dormitory

NAME: *Helen Newberry Joy Residence for Women*

OWNER: *Wayne State University*

LOCATION: *Detroit, Michigan*

STRUCTURAL ENGINEERS: *Severud-Elstad-Kruger-Associates*

MECHANICAL ENGINEERS: *Cosentini Associates*

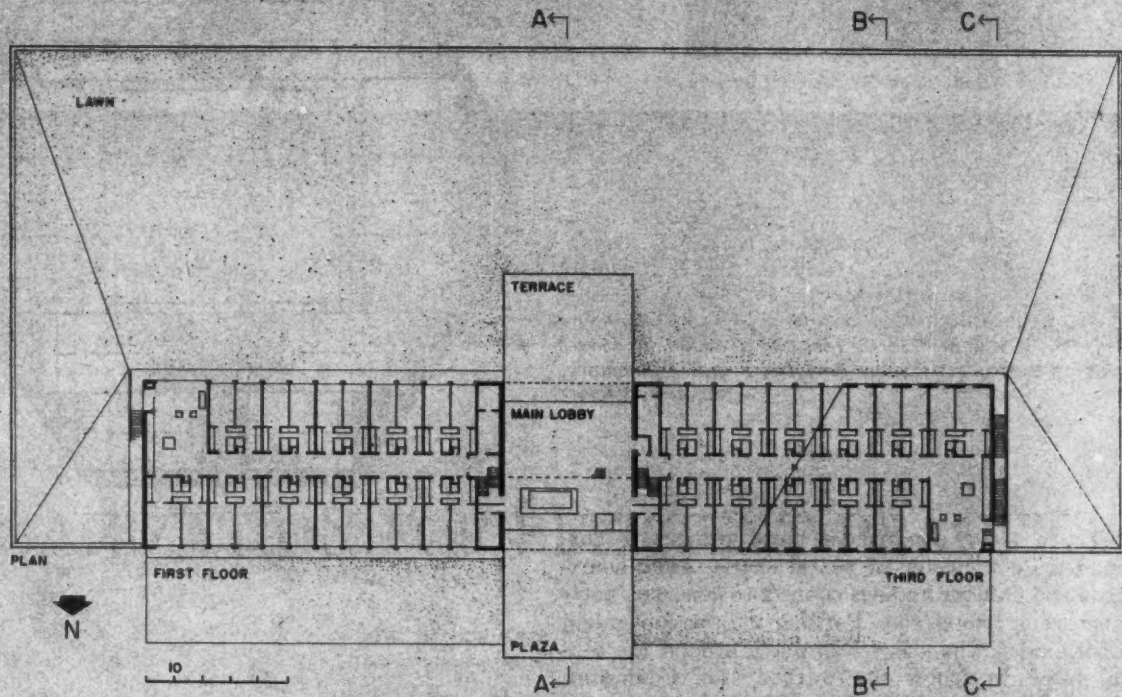
The dormitory site is near to parking lots, two expressways, and a 40-acre cloverleaf. It is essential to provide isolation for study and relaxation—to keep out the city. The basic concept is that of a private lawn and garden planned as an integral part of the building. The façade of the dormitory continues out in a 10-ft wall back of which is a ramped bank pitching up from the dormitory so that rooms look out, not on a closed in courtyard with a high wall, but on a great tilted plane of grass. This wedge of earth is carried around the ends of the dormitory so that there is access at grade from all three floor lounges. The building is sunk a half floor into the ground, thus cutting the vertical height and the walk to the top floor. Cut and fill on the site are in balance.

The central block contains the common facilities. Since the lobby has glass walls facing both entrance and the garden, the effect is that of a bridge under which one looks to the green lawn. Spanning over the entrance desk is the resident advisor's apartment, and on the top floor is the recreation room with a great north window looking up into the trees. There is space transfer from the entrance over the recreation room balcony up to the sloping roof.

The fenestration and furnishing of the individual rooms is of interest. A desk runs along the inside face of the outside wall, over which is a square view window, and at the ceiling is a deeply recessed ventilating strip of glass. The skin of both the building and the retaining wall is precast concrete, natural color with a smooth stone-like finish.



NORTH ELEVATION



SECTION A-A

RECREATION FLOOR  
APARTMENT FLOOR  
PLAZA-LOBBY-TERRACE  
BASEMENT

SECTION B-B

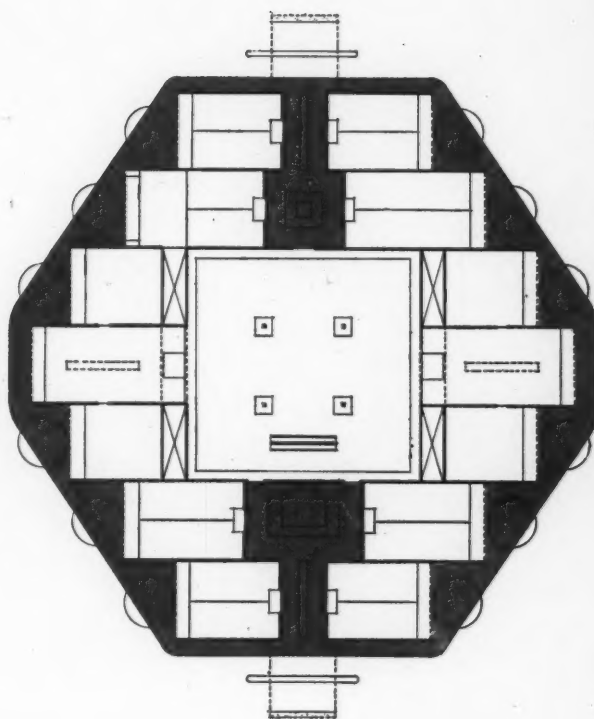
ELEVATION C-C



## Compact Shopping Center

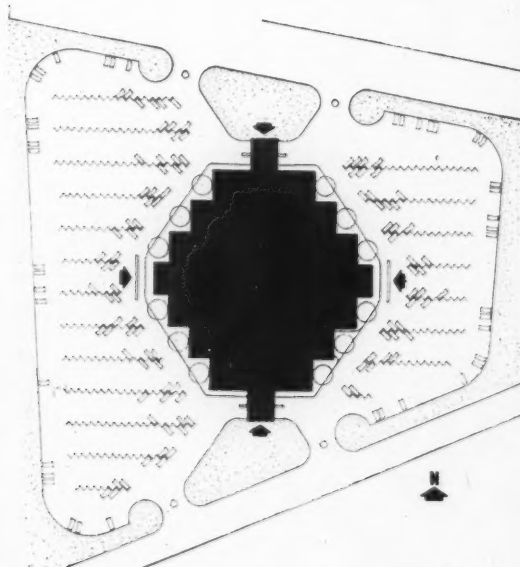
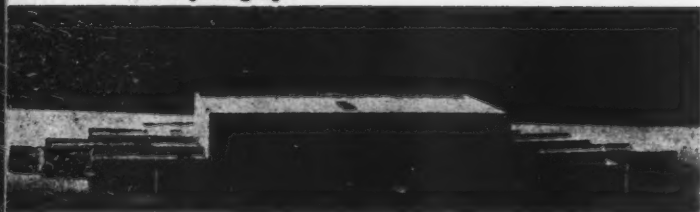
NAME: *Neiman-Marcus*  
OWNER: *Neiman-Marcus Co.*  
LOCATION: *Fort Worth, Texas*  
ASSOCIATED ARCHITECT: *Preston M. Geren*  
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger-Associates*  
MECHANICAL ENGINEERS: *Cosentini Associates*  
INTERIOR DESIGNER: *Eleanor Lemaire, Frank J. Labianca,*  
*project co-designer*

This two story department store project is surrounded by a cluster of rental shops. Axial courtyards and outdoor arcades connect to generous *porte cochères* on two streets. Parking will be convenient at both sides. The shops step down around the central block to follow the warped site. Fountains, trees and flowers will fill the patios and courts.



Roof plan

Model photograph







Planning: Downtown Fresno, California



Shopping Center: Randhurst, Mt. Prospect, Ill.



Apartments: Charles River Park, Boston, Mass.

Gordon Sommers Photos

## Image of the Architect IN PRACTICE

# ORGANIZATION FOR EFFICIENT PRACTICE

## 6. Victor Gruen Associates

How to practice architecture in this time? The Victor Gruen Associates answer to this question is—in actuality—a series of answers. They say, “we try to combine good design with good business, to temper idealism with realism. To do this, we offer very complete services in architecture, planning, engineering, and related design fields by a group of specialists who are also whole architects.” While the Gruen method may not be right for every office or practitioner, the method works. Therefore, it merits consideration

Victor Gruen Associates was organized to do complex building projects in complex times. To accomplish this, the firm offers professional services including architecture, engineering, planning, and related design services such as interiors and graphics. Having recognized the extreme difficulties facing any one man who might attempt to master the technology and economics of building today, the firm reflects in its organization a team effort of a group of capable professionals. This, they feel, leads to the high degree of cooperation and coordination necessary for successful practice in these times. Perhaps the most useful method of getting at the secrets of such a practice is to examine the workings of a particular project as it passes through its phases. Before doing this, it will be helpful to take a look at the general organization of the firm in some detail.

The Gruen firm is a large one. It employs about 250 people and has permanent offices in Beverly Hills, New York, and Chicago. The locations of these offices reflect, roughly, the geographical distribution of the firm's work across the country, about a third of the work being located in the western states, a third in the midwest, the remainder in the east. In addition, the firm does quite a

bit of foreign work. Most of the production is handled in Beverly Hills. From time to time, the firm establishes what it calls coordinating offices in other locations when the volume of work in a given area demands it. At the present time, the firm has about \$130 million of work under construction.

In addition to the professional staff of architects, engineers, planners, and the like, the organization includes interior designers, merchandising analysts, graphic designers, and other specialists. The largest proportion of these people is located in the Beverly Hills office. On the highest level, the executive functions of the firm are handled by Victor Gruen and five partners.

The work of the firm includes an extremely wide range of projects, varied in size, scope, and type. While most of the firm's projects are individual buildings, a number involve groups of buildings, planning, or elements such as graphics, interiors, or furniture design. As is often true, there is some tendency, on the part of outsiders, to regard the firm as shopping center specialists, commercial specialists, or the like, but the firm definitely thinks of itself as being engaged in the general practice of architecture.



## ORGANIZATION OF FIRM

Victor Gruen Associates was organized in a manner calculated to give clients the benefits of specialization, while retaining the assets inherent in generalist practice of architecture. Thus, each of the five partners of the firm, other than Victor Gruen himself, performs at least two major functions. Each has a specialized divisional responsibility and also acts as partner-in-charge of a number of individual projects. Organizationally, this means that each partner has a staff position as well as a line position; each participates in every project as the firm's expert in his specialty; each performs the role of the whole architect in charge of specific projects.

As it works out, partner Edgardo Contini has charge of engineering, while R. L. Baumfield heads architectural design. Ben H. Southland is head of the planning division, Karl Van Leuven of development, and Herman Guttman of production. Gruen's role in all of this involves him in guiding and directing the activities of the firm as a whole and in participation in all phases of all projects.

The organization has thirty associates. Some of these, with the title of director, act as assistants to the partners. Others head various specialized departments of the firm such as urban renewal, research and analysis, cost control, interior design, graphic design, landscape architecture, or merchandising. Still others act as project coordinators or have similar specialized functions.

## WORK OF FIRM

The Gruen organization, as now constituted, is only twelve years old. However, each of the principals had been in practice before the founding of the present firm. During the years of growth of the firm, all types of projects have been handled. These range from small specialty shop interiors to multi-million dollar urban renewal projects. At the present time, the organization is attempting to continue offering services on all types of projects, regardless of size. Along with this goes a continuing effort to make those services more complete.

Right now, the firm has on the boards such diverse jobs as shopping centers, apartments, stores, civic buildings, churches, and industrial plants. In other than single buildings, the work ranges up in size to commissions involving land development, rapid transit system consultation, traffic planning, legislative proposals, and a host of other projects of similar scope. At the same time, a number of smaller jobs such as the design of lighting fixtures, chairs, and signs are now in progress.

## HOW FIRM WORKS

One of the partners, other than Gruen, is assigned to each project that comes into the office. This partner, with a project coordinator, has the over-all responsibility for the job. In essence, the partner is the architect of the job, representing the Gruen firm. He handles all of the outside contacts on the job, with the client, consultants, city building departments, contractors. He guides the job through conceptual stages, development, production, and construction to completion. His is the responsibility for coordinating, for this particular job, the work of all other divisions and departments within the firm. In addition to his responsibilities on his own jobs, each partner, other than Gruen, directs one of the specialized divisions of the firm such as design, engineering, or production.

## FEES AND CONTRACTS

The Gruen organization feels very strongly that the conceptual stages of any project are the decisive ones. They believe the traditional percentage fees to be unrealistic, because this type of fee structure does not allow the proper amount of emphasis to be placed on the conceptual stages. Instead, the firm recommends to its clients that fees for the exploratory and preliminary design phases be based on a cost-plus contract. After the program and design have been fixed, the production of working drawings and specifications and the construction phase of the project can be accomplished for a lump sum fee. The firm has found some client resistance to this idea and there are some jobs—government work for example—which do not readily lend themselves to such a system.

When the cost-plus, lump sum fee structure has been used by the organization, the Gruen firm has found itself able to work out better design solutions for their clients, often at savings in construction costs. In most cases, fees based on this structure closely equate with those based on a percentage of construction costs. The success of the cost-plus, lump sum system used by the Gruen organization could not have been achieved without the accurate and detailed data maintained by the firm on the professional service costs of each job. With such information in hand, the firm has been able to estimate with accuracy the amount of time required for doing jobs of particular types, and to translate this into fees.

## COST CONTROLS

The firm believes that close control of costs, both office costs and actual construction costs, is essential to client understanding and efficient practice. Accordingly, very complete and accurate records are kept of all items of costs of production of a job and its construction. Periodic checks, at close intervals, are made to insure up-to-date control. In this way, costs are kept in hand and problems may be anticipated. Complete records are analyzed and put into usable form for future estimates and budgets.

## OUTSIDE CONSULTANTS

The Victor Gruen Associates organization is unusually complete, yet it finds itself increasingly dependent on the consulting services of outside specialists. As the firm is drawn into bigger, more complete, more complex projects, it turns increasingly to such people as scientists, sociologists, economists, market analysts for expert help. It finds itself working more with painters, sculptors, and other artists. It may seem somewhat unusual in an architectural practice, but hardly surprising considering the breadth of the Gruen work, that the firm finds a growing need for consultation with financial experts, lawyers, political advisors, and governmental agencies. Some understanding of the way the Gruen organization works may be had from an examination of one of its complete projects. Midtown Plaza in Rochester, N. Y. serves as a good example on several counts. The firm was involved in the project before the exact nature of the project had been determined, from its beginnings through the planning, architectural, and construction stages. Midtown is sufficiently complex, composed of enough elements, to demonstrate well the Gruen techniques in all phases of architecture.



## The Planning of Midtown Plaza

Midtown Plaza is a downtown shopping center integrated with office buildings, a parking garage, and department stores. Unusually complete professional services on this project by Victor Gruen Associates included architecture, planning, engineering, graphic design, interiors, and a host of related activities. While not exactly typical of the firm's services, Midtown does serve to illustrate the manner in which the firm handles many of its large, complex projects

As finally designed, Midtown Plaza is a downtown shopping center in Rochester, N. Y. Located on a ten-acre site in the central business district, the center will revitalize a business area which had gone into an acute decline. Presently under construction, Midtown Plaza will eventually form a complex group of elements including a two-story shopping mall, an 18 story office building with 180,000 sq ft of rental space and 78 hotel rooms, a telephone company building, a union bus terminal, two large department stores, and underground parking for about 2000 cars. Several existing structures have been incorporated into the complex. The central and unifying element is the skylighted, air conditioned central shopping mall. The cost of the first phase is \$15 million; the ultimate cost will be \$25 million.

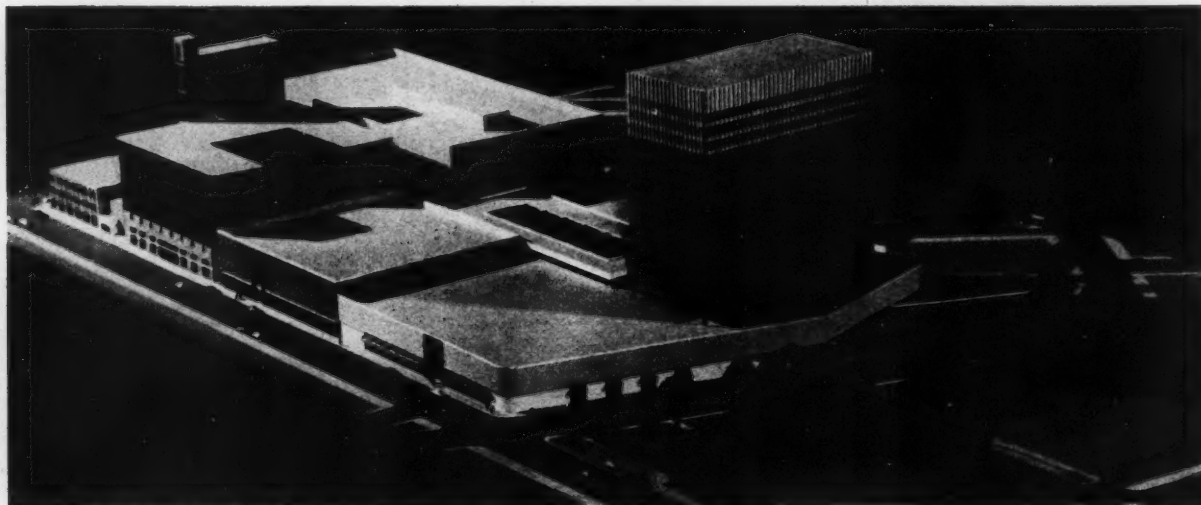
### THE BEGINNINGS

Midtown Plaza actually began late in the winter of 1956, when Victor Gruen was asked by the owners of two of Rochester's department stores to look into their merchandising problems. Their business was falling off due—they thought—to the lack of downtown parking. Their question was: should the stores initiate a suburban shopping center program? They had grave doubts about such a step since Rochester seemed hardly large enough to support such ventures. If not suburban stores, what?

Victor Gruen, in response to the request of the department store owners, discussed their problems with them at some length and visited a number of the outlying shopping centers near the city. Just before Christmas, Gruen reported to the owners that, in his opinion, no real market for regional shopping centers with department store branches existed in the area. Further, he informed them that his firm would develop some recommendations for actions that might be taken to correct the existing situation. These first preliminary steps were taken in utmost secrecy to forestall any competitive moves by other interests before the goals had been determined and agreed upon by all of the parties concerned.

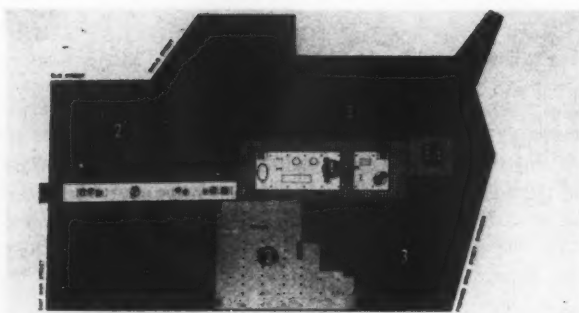
### EARLY PLANNING STUDIES

Early in 1957, the firm began exploratory studies of the downtown Rochester situation. Working with the planning department of the city, the Gruen partner for planning and his staff found that Rochester had come to realize the problems existing in the heart of the city and had initiated some preventative measures. A loop road, offering access to the central area, was then under construction. A number of public garages had been constructed in the area, but none near the site of the department stores in question. A parking and property survey was made. At this time, the firm advised the owners re-

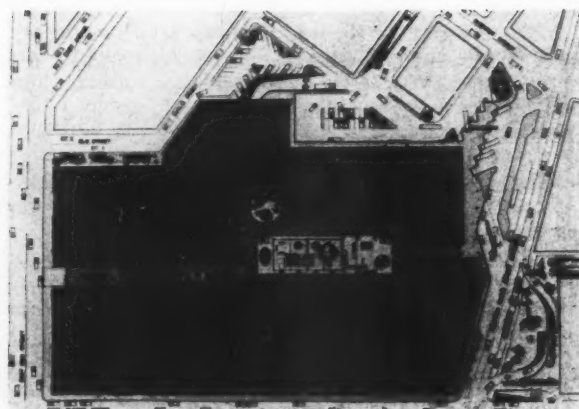


Midtown Plaza—Early Study Model

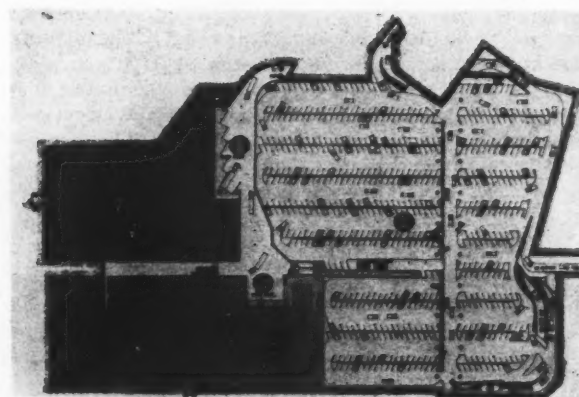




Second Floor



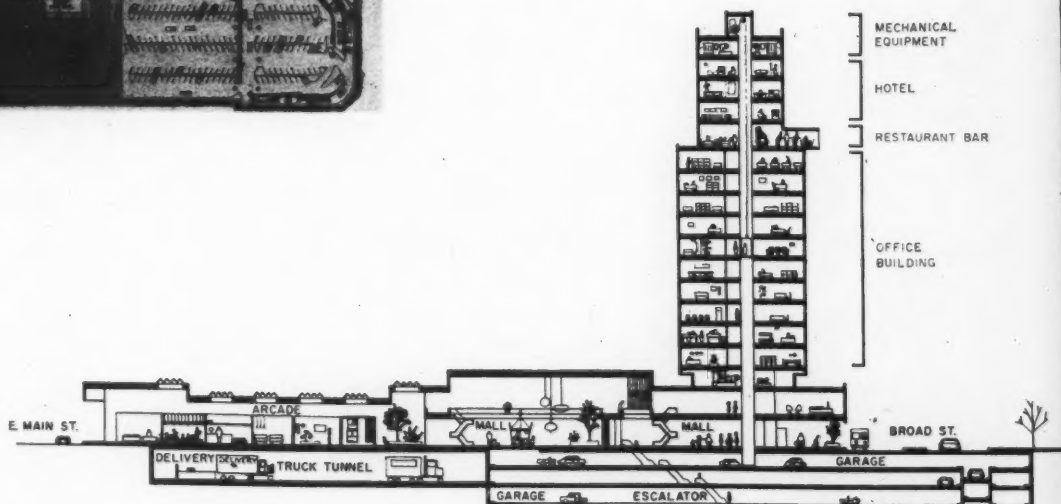
First Floor



Parking Level

#### LEGEND

1. Exist. Bank & Stores
2. Dept. Stores
3. New Rental Areas
4. Shopping Mall
5. Parking Garage
6. Shipping Area



garding acquisition of land near their stores. The owners began buying the land.

By March, 1957, the firm had prepared a program and report which was presented to the owners and the city. The fees for these services were handled on a cost-plus basis, as were all of the fees for the ensuing conceptual phases. The recommendations made in this report were that revitalization of the area in question was feasible, that the city would cooperate, that a complete economic study should be made, that further planning study was necessary. On the basis of the report, the owners authorized further studies. Consultation was begun at this time between the architects and the Rochester planning consultant, Ladislav Segoe.

#### FIRST PLANS

As the Gruen firm began further planning studies, economic studies were under way by consultant Larry Smith, and the city's overall plan for downtown was progressing. The Gruen firm insisted that the city's over-all plans must be developed in conjunction with and complement the Gruen plans for the Midtown area. Only in this way could the city government and taxpayers be convinced of the ultimate benefits to be derived by all from the revitalization efforts.

When the city plan for a downtown core had been finalized to some extent, the firm presented a series of requests to the city relating to Midtown. If the project were to go ahead, it would be necessary for the city to extend a street to the property, close one street on the property, another partially, and construct an underground garage larger than had been originally contemplated.

In January, 1958, nine sketches were presented, showing the Midtown Plaza concept as a pedestrian shopping center with an office and hotel building, an underground parking garage, and a union bus station. The scheme was accepted in general, with the provision that the shopping center become two-story rather than one, warehousing for the department stores be included, the bus terminal be enlarged, and a restaurant and bar be provided. As it turned out, the scheme was almost contin-



uously reviewed and revised, and alternate schemes were developed, during the entire year following.

#### DESIGN

Gradually, during the development of the first sketches, the burden of the project was shifted from the planning division of the firm to the architectural design division. At this time, Edgardo Contini assumed responsibility for the project as partner-in-charge. The projected time schedule was this: Revision of exploratory studies—6 weeks, development—5 months, preliminaries—3 months, working drawings—4 months, adding up to a total time of about one year before construction could actually begin.

As work went ahead, all sorts of new problems presented themselves and had to be resolved. The owners decided to enlarge one of the department stores. The Gruen merchandising and interior departments were put to work on this problem. The firm found itself increasingly involved in areas that ordinarily fall outside of architecture, such as consultation on land acquisition. Since the entire project was to be privately financed and owned, except for the parking garage which was to be publicly financed and owned, the firm got involved in the knotty legal questions presented by public and private ownership of the same piece of property. These problems, together with a vast number of others, added up to considerable delay in the architectural work. Twelve schemes were worked out, presented, and revised many times. The thirteenth scheme was accepted, in the spring of 1958. Work now came almost to a halt, since certain necessary parcels of land had not been acquired at this time.

In the summer of 1958, negotiations for three important parcels of property were nearing completion and the owners authorized the preparation of presentation plans and a model. In the fall of that year, the presentation was made to the city council and the press. Victor Gruen gave a public lecture in Rochester to outline the benefits to be derived by the city from Midtown Plaza. Later, he appeared before the city council to explain the



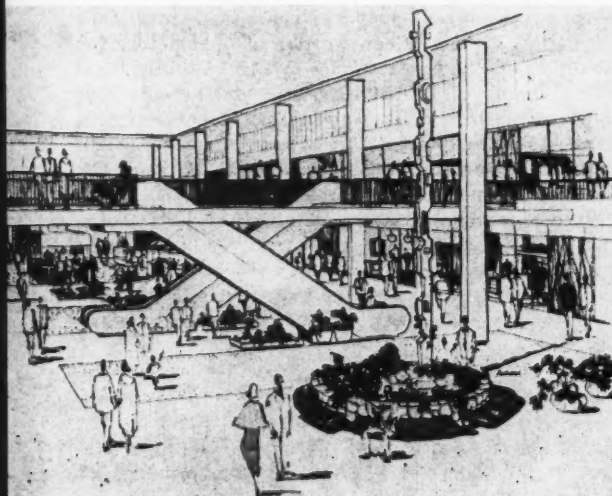
Arcade Connecting Central Mall with Main Entrance

project. The city council approved extension of Broad Street as requested, and gave the go ahead for preparation of parking garage working drawings. The architectural contract was on a percentage basis and included all services, except supervision which was given to the Rochester firm of Bohacket and Flynn.

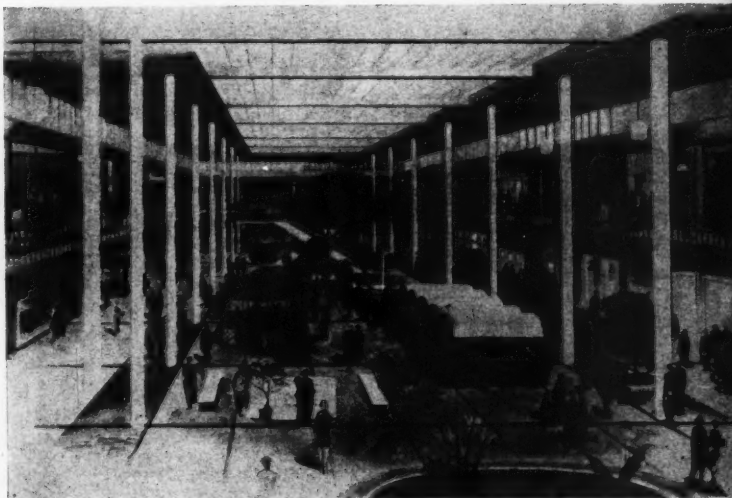
#### PRODUCTION

The Gruen firm began working drawings for the garage, on a crash basis, early in 1959. Within four months, excavation of the site was begun. Within the next two months, all working drawings and specifications for the garage were complete, including those for the intricate automatic system of traffic control. Garage working drawings had to be rushed to completion, before all the preliminary problems of the remainder of Midtown had been solved. This made necessary a series of assumptions on features common to both structures such as columns, stairs, exits, elevators, and the like.

While the garage production was under way, problems kept popping up on the remainder of the project. For example, objections were raised against Midtown by neighboring merchants and a theater. Victor Gruen and



All Escalators Connect Various Levels With Parking Garage



Central Mall Forms Link Between Large Stores

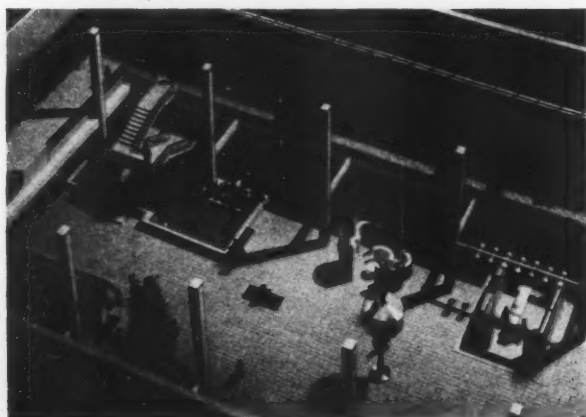


## Image of the Architect IN PRACTICE

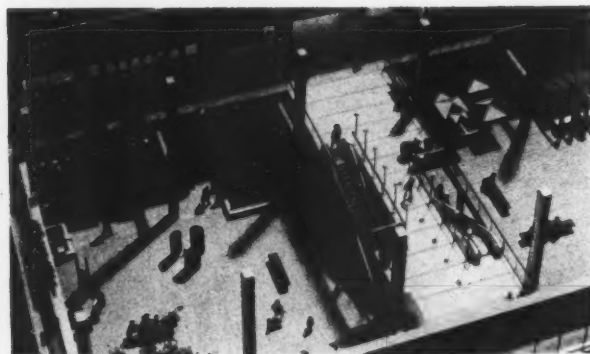
—Victor Gruen Associates



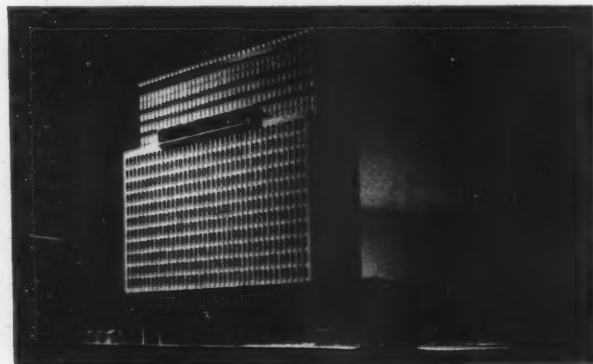
Central Mall From Second Level Walkway



Reflecting Pool and Kiosks in Central Mall



Mall Circulation by Bridges and Escalators



Midtown Plaza: Final Model

Edgardo Contini met with these interests and succeeded in working out the differences. The final result was that the theater and many of the stores began alteration programs of their own to bring their properties more into keeping with Midtown.

As the garage construction got under way, the other preliminaries were being revised and reworked to bring them into accordance with later thinking of the architects and owners and to solve further problems. Estimates of costs were under study during all of this time and were being revised in the light of more complete information.

About this time, the firm got into two other areas of the work, the initiation of an art program for the center and the leasing negotiations between the owners and prospective tenants. Victor Gruen set up a program of integration of art with the architecture of the project, with the cooperation of local artists whose work is eventually to be used. A separate project was set up to assist prospective tenants with layouts, consultation, and design. To help stimulate interest among these people, the graphics department prepared a brochure to explain and help sell Midtown Plaza to prospective tenants. By late winter, 1959, the project was far enough along for the owners to authorize preparation of working drawings. The architectural and engineering services contract, from this point on, was for a lump sum based on the extent of the work.

A difficult problem, at this stage, was that while the owners wished to push ahead with working drawings as fast as possible, they also wanted, at the same time, to keep basic features of the plans open and flexible to avoid interference with lease negotiations. To add to the problems, garage construction was behind schedule, with the result that the department stores were without their original parking, yet could not use the new garage. Steel drawings were finalized early to allow early mill orders. At length, the problems were solved and contract drawings and specifications were completed and released in October, 1960.

### CONSTRUCTION

In the spring of 1960, while working drawings were being prepared, the firm recommended to the owners that they negotiate with a selected group of contractors for construction of the project. The owners retained Carl Morse, of Construction Advisors, Inc., and President of Diesel Construction Co., to negotiate with contractors in the interests of the owners. The Gruen firm worked with Morse in these negotiations. Also, early in this year, the Rochester Telephone Company decided to go ahead with the construction of a six-story office building within the project. The architectural firm was involved in the negotiations leading up to this decision. While working drawings were being prepared for the telephone building, the contract for the rest of the project was awarded in November, 1960.

The first phase of the garage has now been completed; the shopping center, telephone building, and tower are under construction. Supervision is in the hands of the Victor Gruen Associates field office, established in Rochester for that purpose. Checking of shop drawings is handled in Beverly Hills by the Gruen departments involved. Construction is scheduled for completion in 1962.



All photos by Gordon Sommers



## COLORFUL HIGH-RISE IS TALLEST IN L.A.

### *The Tishman 615 Building*

*Los Angeles, California*

ASSOCIATED ARCHITECTS &

ENGINEERS:

*Victor Gruen Associates*

*Daniel, Mann, Johnson &*

*Mendenhall*

MECHANICAL & ELECTRICAL

ENGINEER:

*Ralph E. Philips*

GENERAL CONTRACTOR:

*Tishman Realty &*

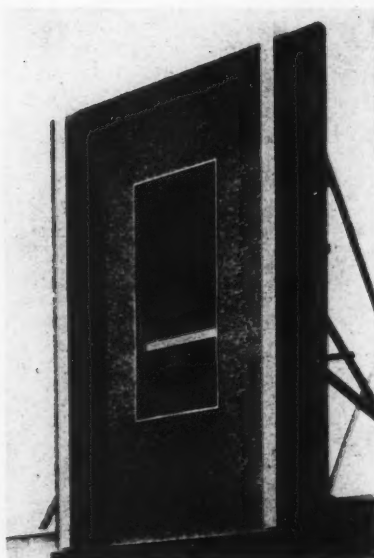
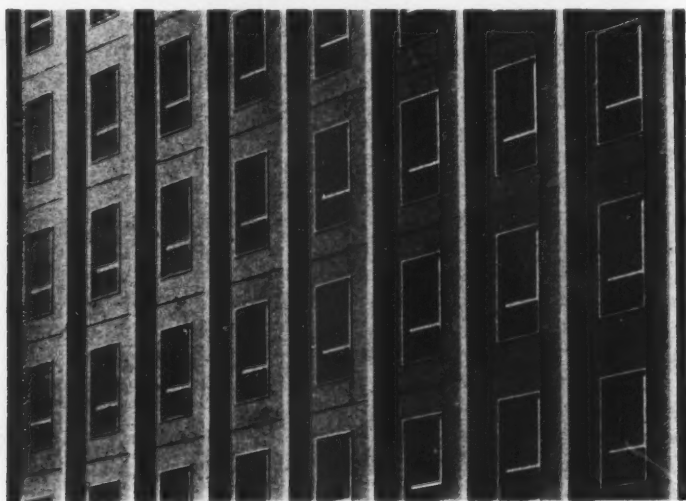
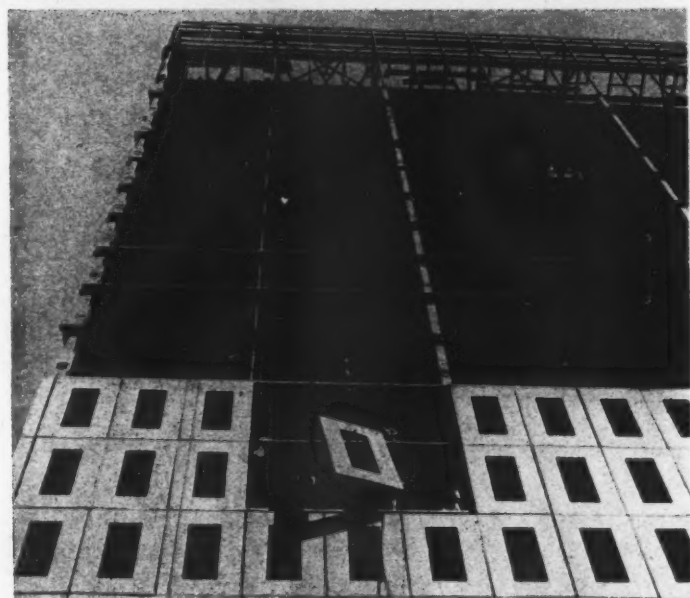
*Construction Co.*

Sheathed in a curtain wall of blue glass mosaic tile and vertical aluminum ribs, the colorful new 22-story office building for the Tishman Realty and Construction Co. in Los Angeles is one of the first structures to exceed that city's previous height limit of 13 stories, and is now the tallest commercial building in the city. Rising over two below-grade floors devoted to storage and certain mechanical equipment, the structure—which covers an area of one-half a block—reaches a height of 270 ft. Additional mechanical equipment is housed at roof level; tenant parking is provided by a new, multi-level structure for 350 cars, located on an adjacent lot.

At the level of the 20th floor, a 12-ft wide-open terrace forms the perimeter of the building and provides 20th floor tenants a protected outdoor space—reached through sliding glass doors—that offers an attractive view of the city. At street level, the exterior walls are of glass, marble, and travertine; the travertine is carried through into the lobby.

Glass mosaic tile was chosen for the unusual curtain wall due to its qualities of permanence, ease of cleaning, and wide range of color. However, its small size and the necessary high labor and scaffolding costs of conventional application led the architects to devise a production line technique to manufacture prefabricated panels one-story high and 7 ft 6 in. wide. The panels were manufactured in the open on a suburban lot; ordinary tools and equipment were used; no special problems were encountered, either in manufacture or in placing the panels on the building.

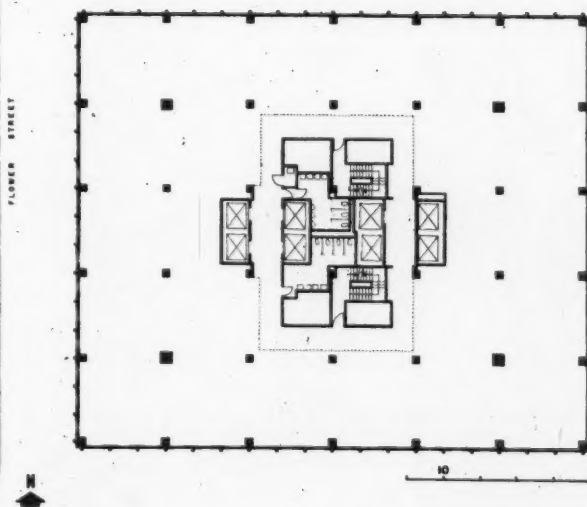
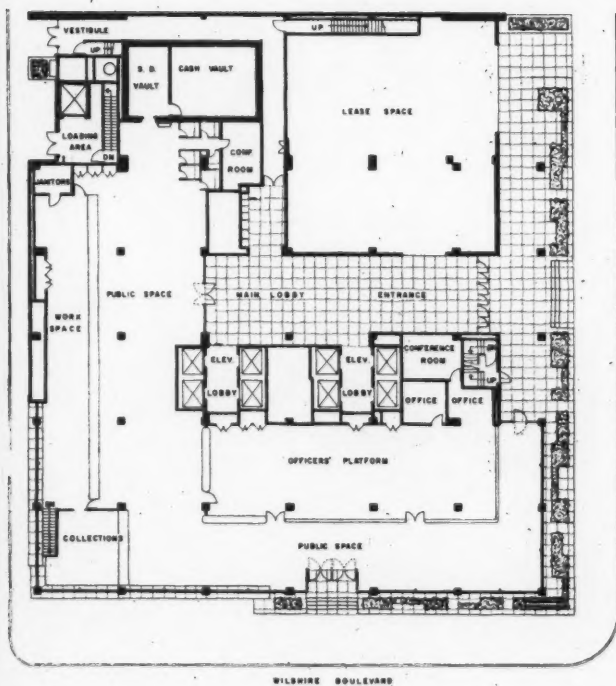




### *Tishman 615 Building Los Angeles*

The production line fabrication methods employed in the manufacture of the blue glass tile curtain wall panels for this building may encourage further experimentation with glass tile walls, since a practical and economical method of using this material has been established. The panels—7 ft 6 in. wide and 11 ft 6 in. high—were manufactured in the open on a suburban lot. Each panel has a 4 in. steel channel frame and a 3 by 5 ft opening for an aluminum window assembly. A scratch coat was applied to wire mesh attached to the frames; followed by a setting bed into which paper backed tile sheets were pressed. After the paper was soaked off, the panels were grouted and stacked ready for shipment. The building required 1180 panels, each weighing 1200 lbs. Panels were secured to the steel frame by welding; the placing of window units and caulking were done from a light-weight window washing scaffolding







2 photos by Marvin Silver

## LUXURY INTERIORS A FEATURE IN CALIFORNIA BANK

*Union Bank, Beverly Hills, Calif.*

*Sidney Eisenshtat, Architect*

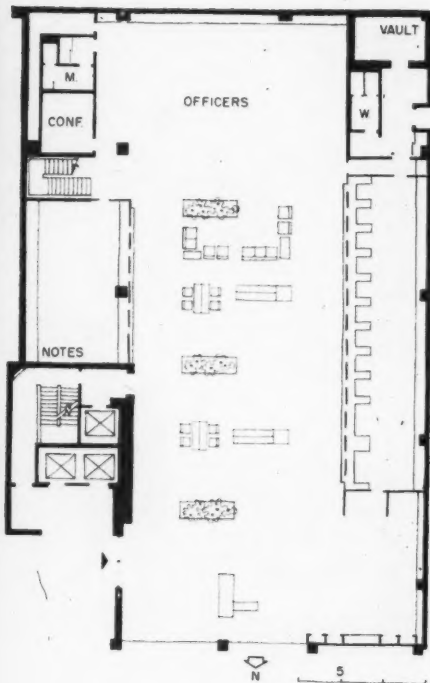
*Maria Bergson Associates, Interior Designers*

The posh interiors of this bank—the first regional branch built by the parent Los Angeles organization—are designed for maximum appeal to the wealthy Beverly Hills citizenry. The brown and beige carpeted banking room is high-ceilinged, spacious, uncluttered; and features a generous lounging area reminiscent of a turn-of-the-century club. The black marble and stainless steel check desks are of both the stand-up and sit-down types, and were made to special design by Bergson. Lounge and desk chairs are variously upholstered in blue, orange, and beige fabrics. The restrained banking counter has black marble top surfaces and a die face of natural cherry panels and aluminum strips. The wall back of the tellers consists of white vinyl rectangles. The mezzanine, enclosed by a decorative screen of special design, houses the credit department.

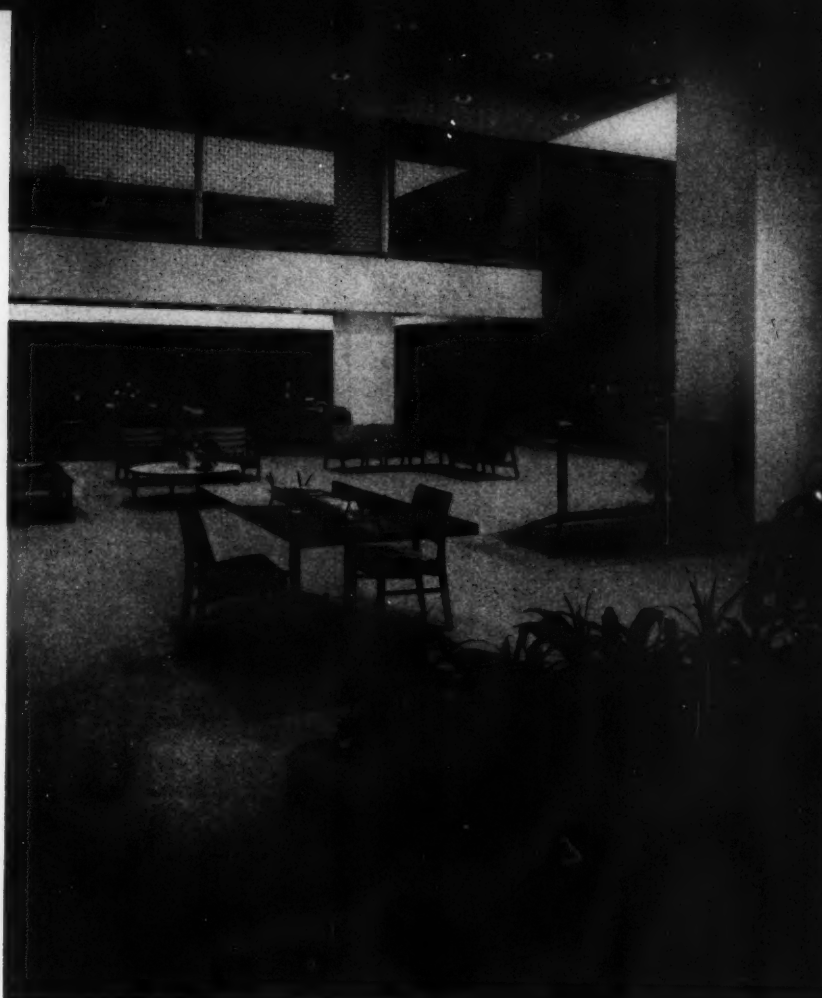
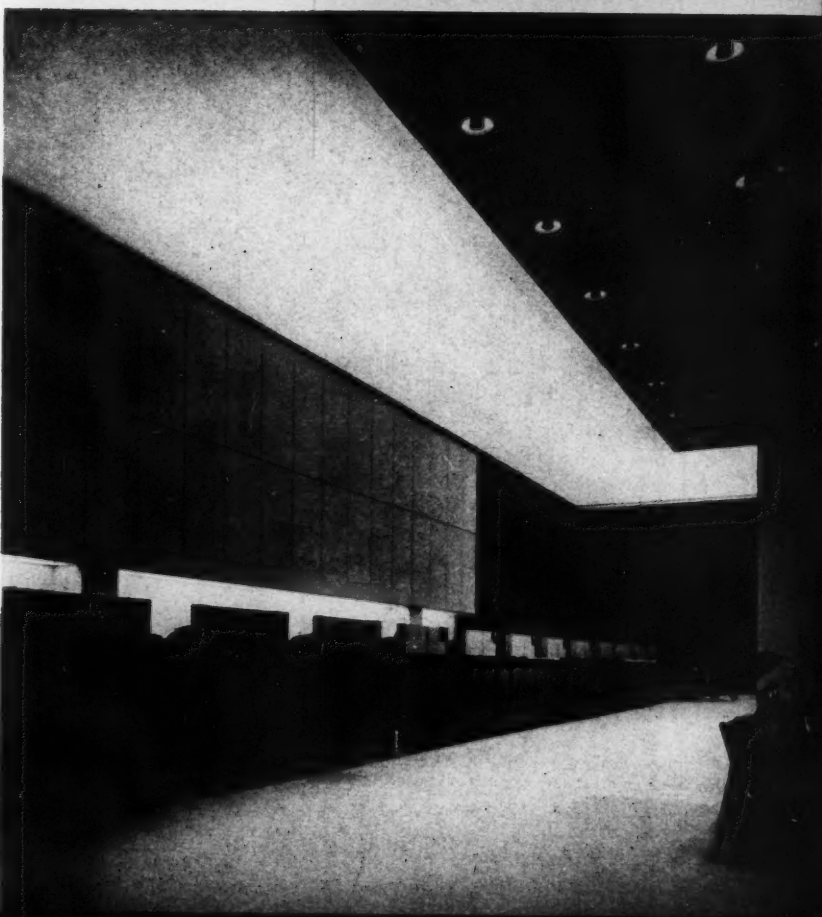
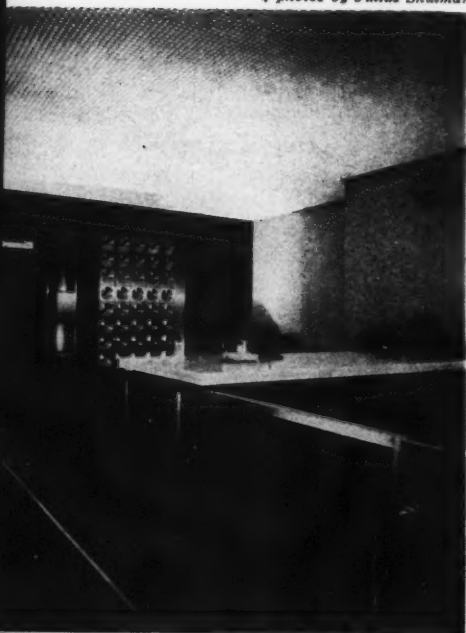
*Engineers: Joseph Sheffet, Structural; Samuel Kaye, Mechanical; John Silver, Electrical; General Contractor: Del E. Webb Construction Company*



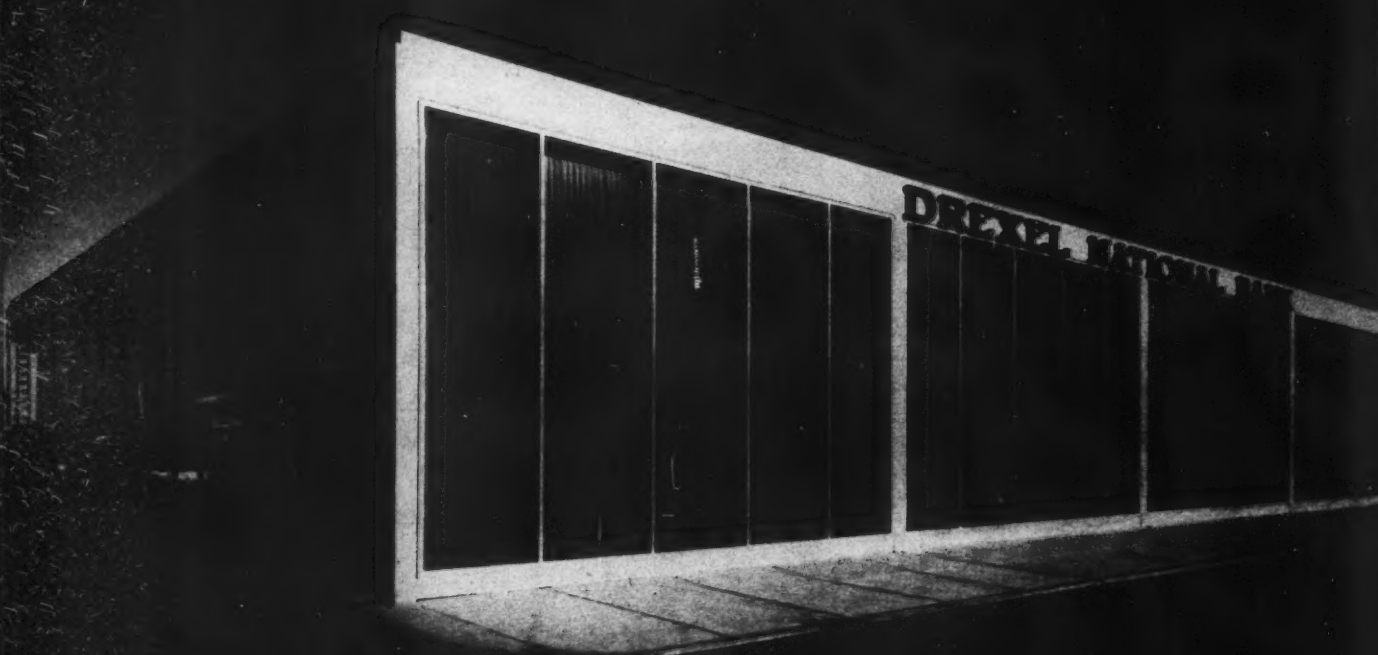




4 photos by Julius Schulman







## HANDSOME BANK IN CHICAGO REDEVELOPMENT

*Drexel National Bank  
Lake Meadows Shopping Center  
Chicago, Illinois  
Skidmore, Owings & Merrill,  
Architects & Engineers*

This well designed bank building—containing 10,000 sq. ft of banking space, a safe deposit vault, and 10,000 sq. ft of office and service area—is the latest addition to an existing shopping center which is, in turn, a part of the Lake Meadows Redevelopment Project.

Two major considerations influenced the design: the small site, and the effort to integrate the new building into the existing structural expression and at the same time give it an individual character. The fireproofed steel frame is jacketed and painted white; the gray glass walls are framed in extruded aluminum sections.

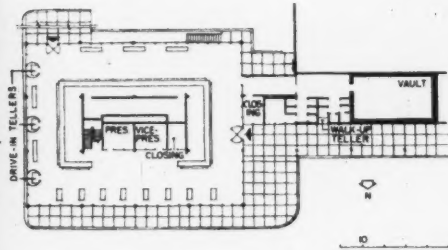
The building is in two parts: the glass enclosed main banking room, and a link to the south housing the vault, walk-up teller's booths, and a closing room. The only major element in the banking room space is the free-standing central core of offices, stairs, shafts, etc.

*General Contractor: E. H. Merhoefer, Jr. Company*

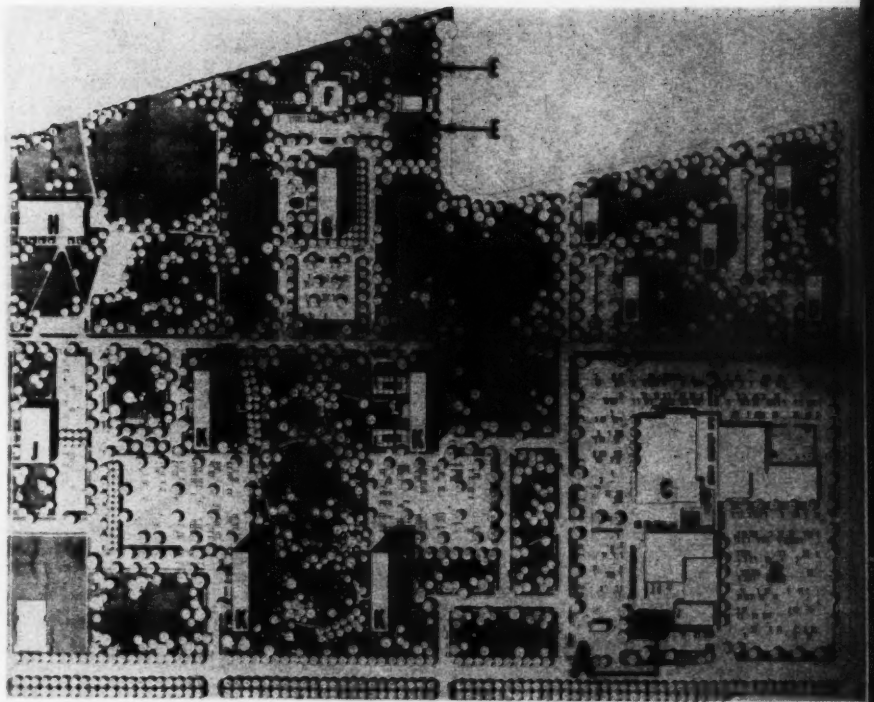


# LEGEND

- |                         |                          |
|-------------------------|--------------------------|
| A. Drexel National Bank | F. Club Building         |
| B. Shopping Center      | G. 13-Story Apartment    |
| C. Department Store     | H. Public School         |
| D. 12-Story Apartment   | J. Professional Building |
| E. Tennis & Ice Skating | K. 21-Story Apartment    |



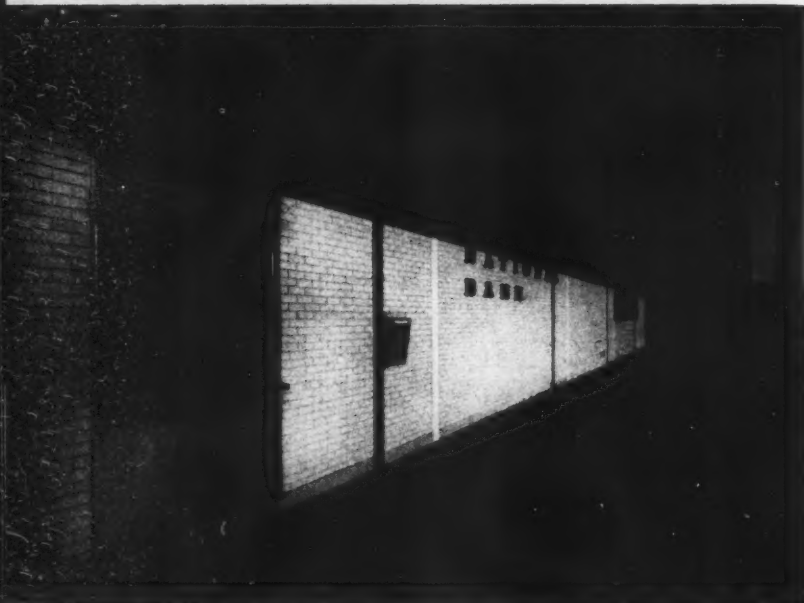
The photo below shows the main banking space, pointing out how the central island core—at left—leaves the peripheral gray glass walls clear for check desks and the three drive-up tellers' booths. The illuminated ceiling is suspended on aluminum T-sections; the floor of the banking room is gray terrazzo—in other areas is vinyl tile; the glass-topped check desks are of special design by the architects



Photos by Hubs Henry, Hedrich-Blessing



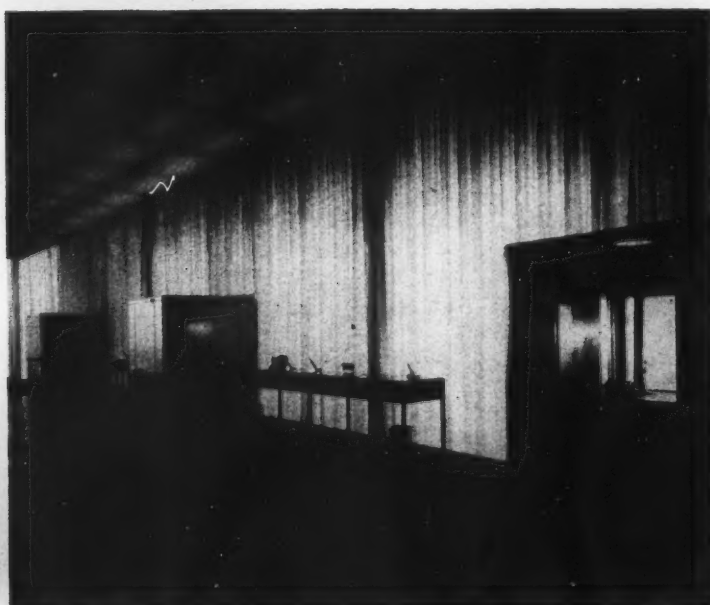
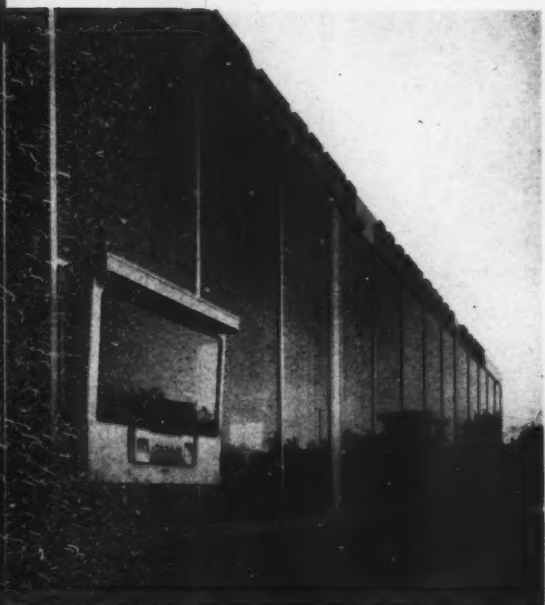




## Drexel National Bank Chicago, Illinois

The two photos at left show exterior views of the link that connects the bank to the remainder of the shopping center, and which houses, at its far end, the safe deposit vault. In the foreground one sees a walk-up teller's window and the night depository. The brick that sheathes this wing is matte glazed and light gray in color.

At left below, the photo shows the north wall with its drive-up tellers' windows. Note the precision of detail for the aluminum and gray glass curtain wall, and the manner in which the drive-up windows have been integrated into its modular pattern. At right below, a view of the interior of the same wall, showing the other side of the drive-up booths, as well as a peek inside one







*Rudi Rada photos*

## BIG HOUSE SPACIOUSNESS FOR SMALL FLORIDA LOT

*House for Mr. and Mrs. Burton Cohen*

*North Miami, Florida*

*Kenneth Treister, Architect*

*Howard Ahern, Associate Architect*

*Gaines Construction Company, Contractor*

*Bertram S. Warshaw, Structural Engineer*







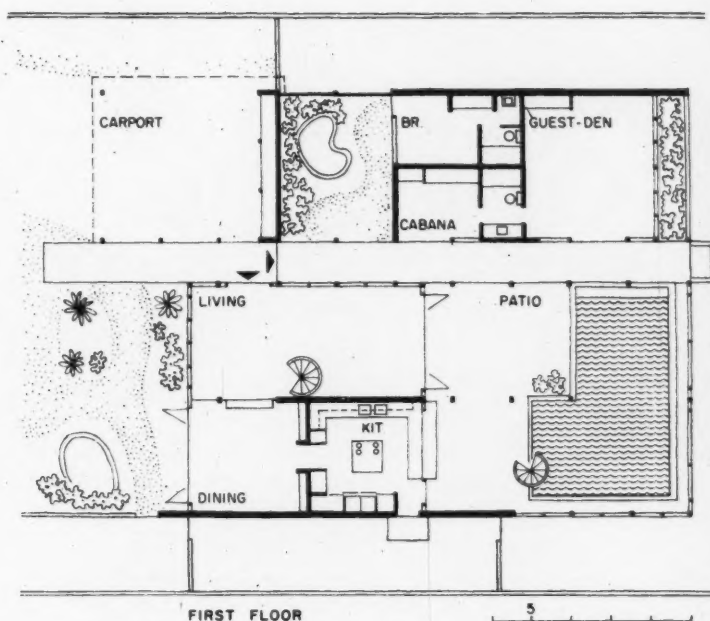
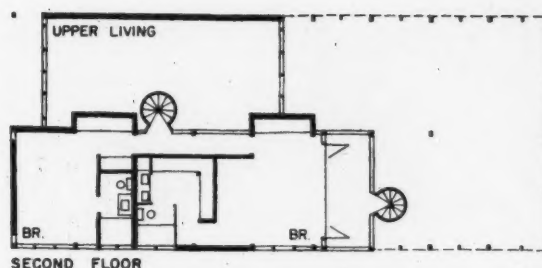
## The Burton Cohen House

The big problem of providing privacy and large living and entertaining areas, at reasonable cost for a young family, was solved in some very interesting ways in this house.

The lot was a small urban one, measuring 75 by 125 ft, and bordering on a typical Florida developer's canal. There were no natural features, except for the possibility of a view of Biscayne Bay from a second floor. The family, at present, consists of husband, wife, and an 11-year-old son.

The clients' needs were met by completely enclosing the lot with a garden wall, to give privacy and define the lot as living space, and by using a divided or "exploded" plan with several courtyards for outdoor living in traditional tropical style. The house is divided into three separate buildings within this compound: a main house (complete in itself), a guest and cabana house (which could become a self-contained apartment), and a carport. Family bedrooms were placed on a second floor in the main house to take advantage of the bay view.

The sense of space was enormously increased in the house by several devices. The living areas have a fairly open plan, and using a two-story space for the actual living room. These areas also open on two sides to private courts and on the third side onto a big screened Florida room with swimming pool. Wherever possible, the furniture was built-in to save space.



Rudi Rada Photos







### The Burton Cohen House

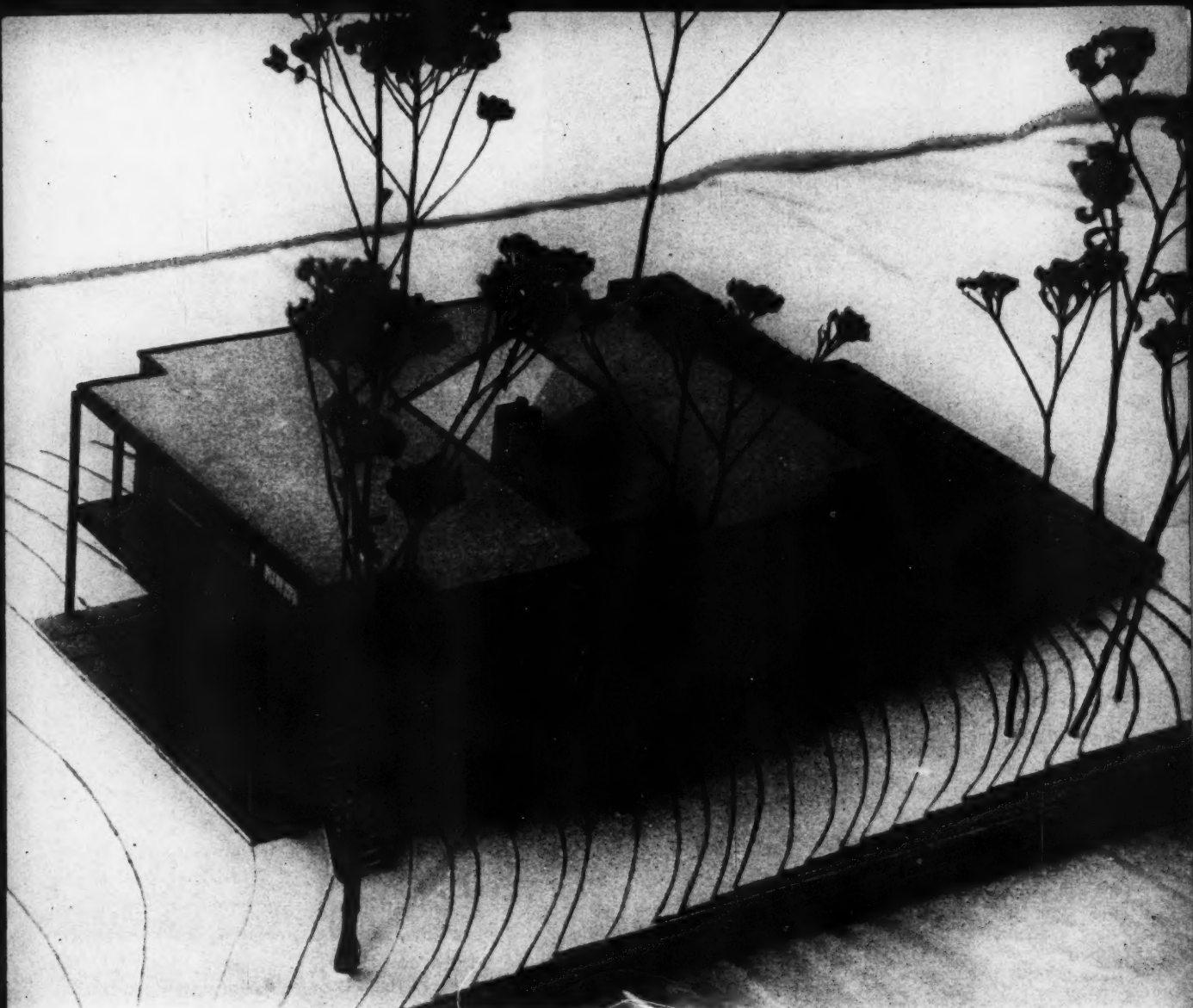
The separate guest house helps create an illusion of more space in the complex than really exists. This building contains guest room-den (above) which gives additional living space, a cabana and bath facilities for the pool, and a maid's room placed where it has considerable privacy.

In the main house, the kitchen has a pass-through and snack bar opening directly on the pool area (below left). All rooms in the house open onto courts, as in the living room (below right).

Construction is of wood frame, with cypress board paneling throughout. Living and dining room floors are green Vermont slate; those in the den are brick, and walks and pool areas are cement finish lined in cobblestones. The courts are largely paved with gravel.

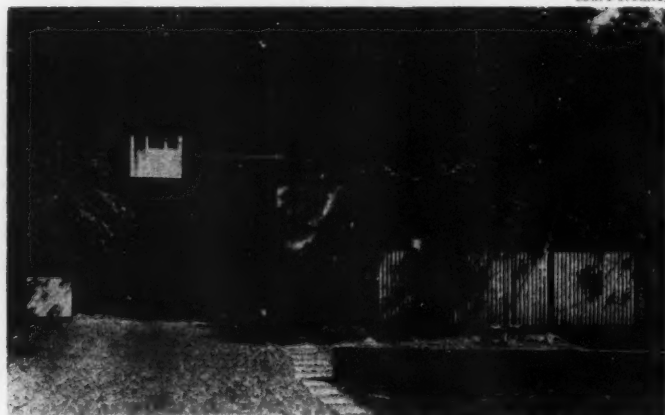






## MASONRY PYLONS SUPPORT TRIM HOUSE

*Marc Newhof*



OWNERS: *Mr. and Mrs. Ira Bernstein*

LOCATION: *Princeton, New Jersey*

ARCHITECT: *Frank Schlesinger*

LANDSCAPE ARCHITECT: *Jeanne Schlesinger*





## The Bernstein House

Four massive masonry elements rising unbroken from ground level to roof line play a major role in structure, design emphasis, and plan of this neat \$29,000 house.

The house is on a sloping site, and is approached across a podium-like motor court. All major living areas are located on the upper level to overlook a brook and a large stand of elms to the north; it also permits admission of south sun to these spaces through a skylight in the roof. These spaces are extended out by a screened deck. Smaller bedrooms, opening on covered terraces, are on the lower "half-basement" level. It was felt that the strong two-story masonry elements would help obviate any "basement floor" associations to the lower level. The "U" shape of the masonry pylons also allows them to house the basic storage areas of the house; the lot is a narrow one, with windows not particularly desirable at the sides of living spaces.

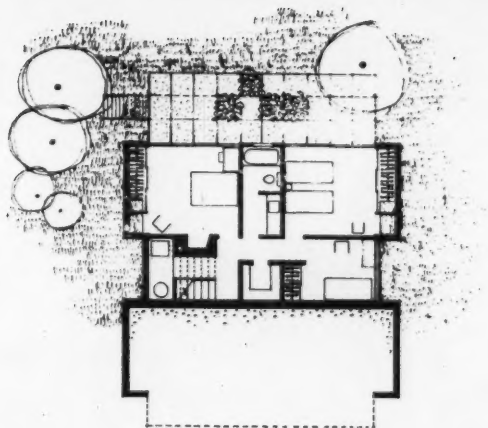
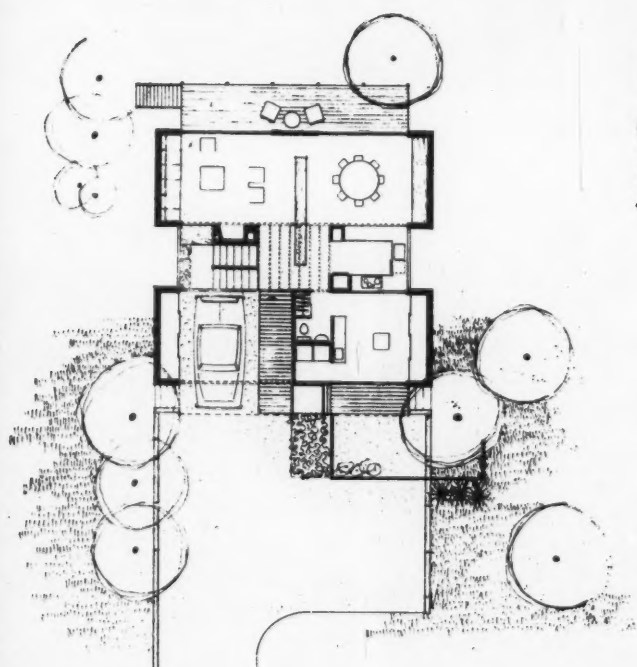
One of the owners' requirements was that the kitchen, living and dining areas be one open space. This was provided, with low cabinets to designate activity areas. The obvious need for a multi-use, private room, was provided by the studio off the kitchen. It is concrete floored, and includes such items as a slop sink, floor drain, laundry facilities, lavatory and storage. It also doubles as hobby room, TV room and spare guest room.

The exterior walls are lightweight concrete, finished with silicone. Interiors are finished in plaster, with a sand finish. All ceilings are cedar. Floors are birch in living areas, quarry tile in kitchen and entry. Heating is radiant panel in the concrete slabs, and fin tube radiation recessed in floor joist spaces.





Mare Neuhof





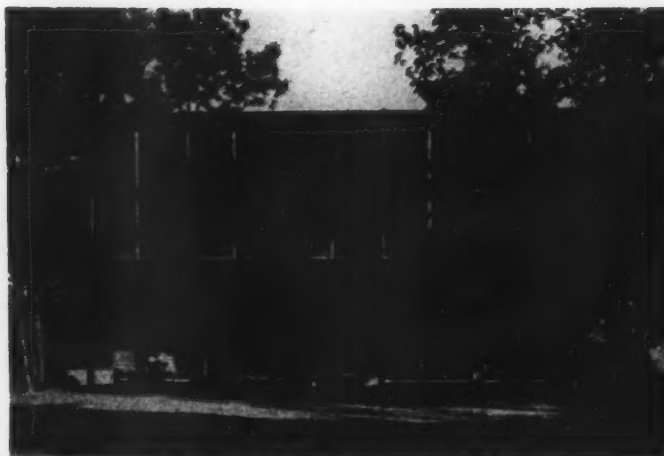


Marc Neuhof

### The Bernstein House

In spite of its raised-basement scheme of the house, all rooms and areas are well related to the outdoors, as these photographs clearly show. The photo at left is a side view of the entrance court, with steps leading to the grounds.

At the rear of the house, the lower terrace is reached directly from bedrooms by sliding glass doors. The screened deck above has access to the terrace via the stair seen in the photo below right





# SCHOOLS

## *Eight Schools With Good Ideas For Achieving Quality With Real Economy*

It has been repeatedly said that, without resorting to shoddy, cheap construction, there is no *single* way to achieve real and effective economy in schools: there are, though, endless combinations of *many* smaller ways.

With this in view, we have gathered this portfolio of more than usually attractive schools, whose architects have found their own answers to at least some of the many cost problems facing school designers today. The range runs from schools which had to be designed for their programs for the least money possible, to one with a more liberal—but fixed—budget, and which was expected to offer the most and best facilities possible for that sum. A couple of the schools were expected to considerably upgrade the environment for the children, and on a budget; and there is one which offers a scheme for addition at minimum cost. Several offer ways for possible changes for new curriculums. And there is a direct comparison cost study between a gym of typical construction, and one housed in one of Bucky Fuller's domes.

As for typical costs of schools, we would like to recommend a new government publication giving results of a cost survey of 128 schools across the nation, and with breakdowns on regional averages, materials, labor, and so on. Their U.S. cost per sq ft average is \$14.16; for the Northeast, \$16.99; North Central, \$13.67; South, \$12.11; and West, \$14.25. The booklet, "Labor Requirements for School Construction, Bulletin No. 1299", may be obtained for 35 cents each from the Bureau of Labor Statistics, 341 Ninth Avenue, Room 1025, New York 1, New York.



# ART AND NEAT DETAILS BEAT BROOKLYN BUDGET

NAME: *Public School 46*

LOCATION: *Brooklyn, New York*

ARCHITECTS: *Katz, Waisman, Blumenkranz, Stein, Weber  
Architects Associated (Richard G. Stein, Partner-In-Charge)*

MECHANICAL ENGINEER: *Bogen and Allston*

STRUCTURAL ENGINEER: *Fraioli, Blum & Yesselman*

ACOUSTICAL CONSULTANT: *Michael Kodaras*

BOARD OF EDUCATION, DIRECTOR OF ARCHITECTURE:

*Michael Radoslovich*

MURALS AND SCULPTURE: *Costantino Nivola*

GRAPHICS: *Ladislav Sutnar*

This handsome K-6 school forms quite a "status" structure for its Brooklyn neighborhood—it is replete with sculpture, murals, good graphics, and fine details. But perhaps the most interesting facet is the fact that its cost was about \$600,000 under the budget: it was budgeted for \$2,500,000 and bids came to \$1,910,000.

Planned for 1,200 pupils (and including a detached kindergarten wing), a good visual and educational environment was sought throughout. All materials were also selected with a special eye to low upkeep.

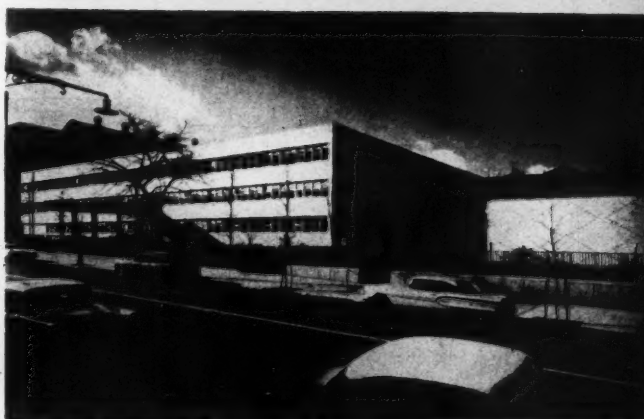
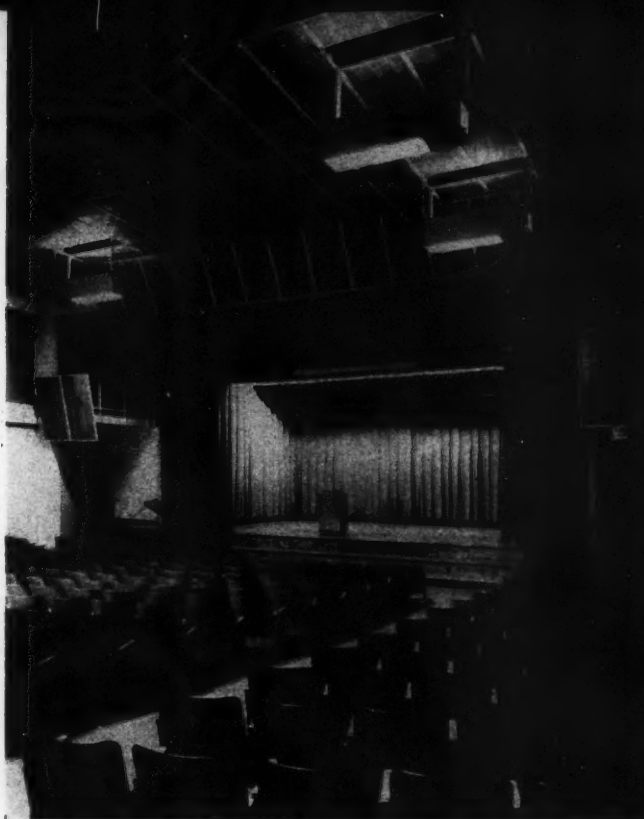
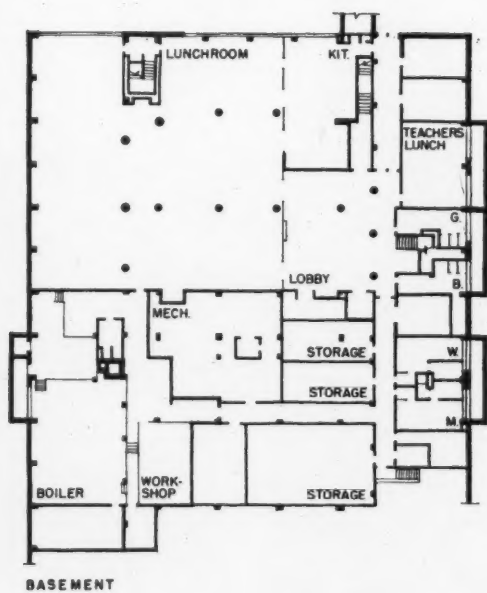
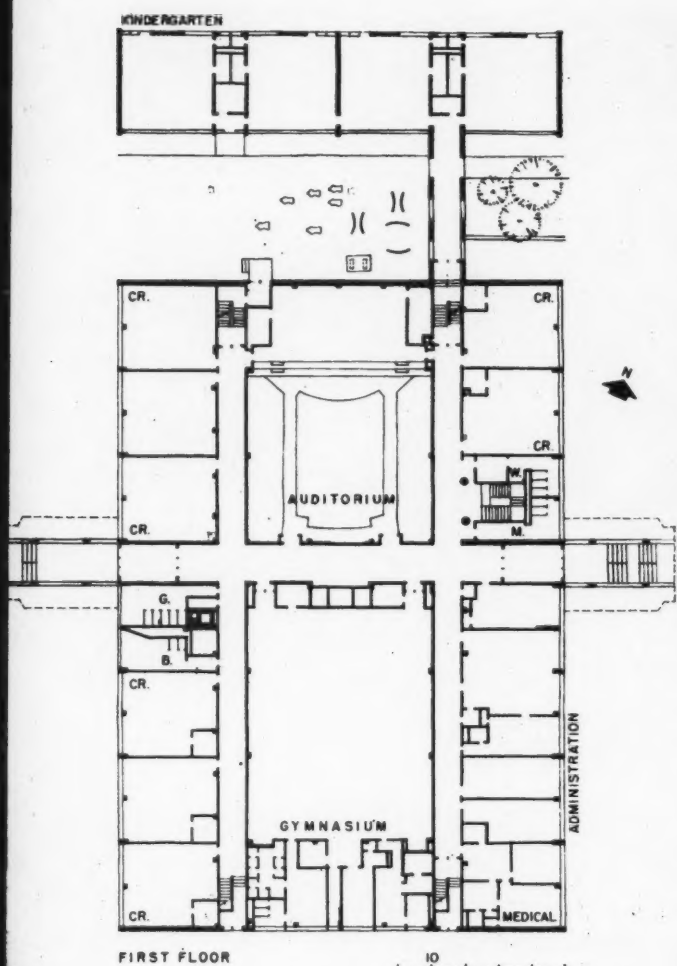
The architects credit the economy to several factors: 1. the use of a simple, compact structure and plan; 2. construction materials are largely used as finish materials; 3. repetition of a carefully studied classroom (there are 37, besides the kindergarten); and 4. special attention to detail.

Some of these details include: continuous windows with column covers and glazed brick spandrels less expensive than other combinations studied; raw concrete for retaining walls, with exposed aggregate; high auditorium and gym permit elimination of fireproofing over steel; epoxy enamel wainscot on exposed concrete; repetition of window type; canopies independent of basic structure.

© Ezra Stoller



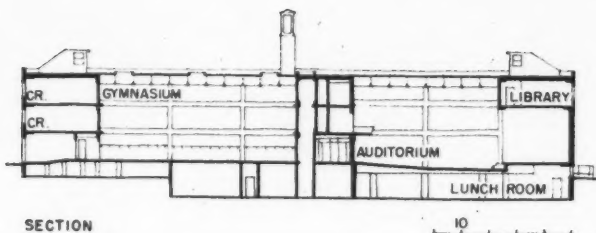




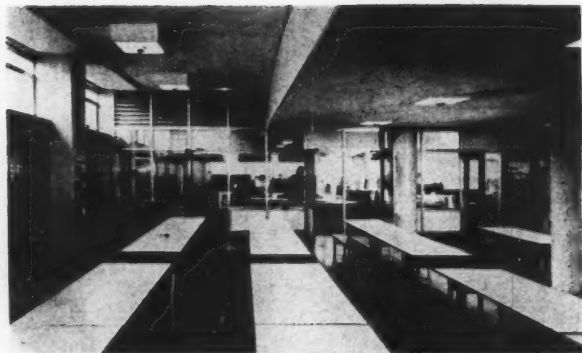




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SECTION

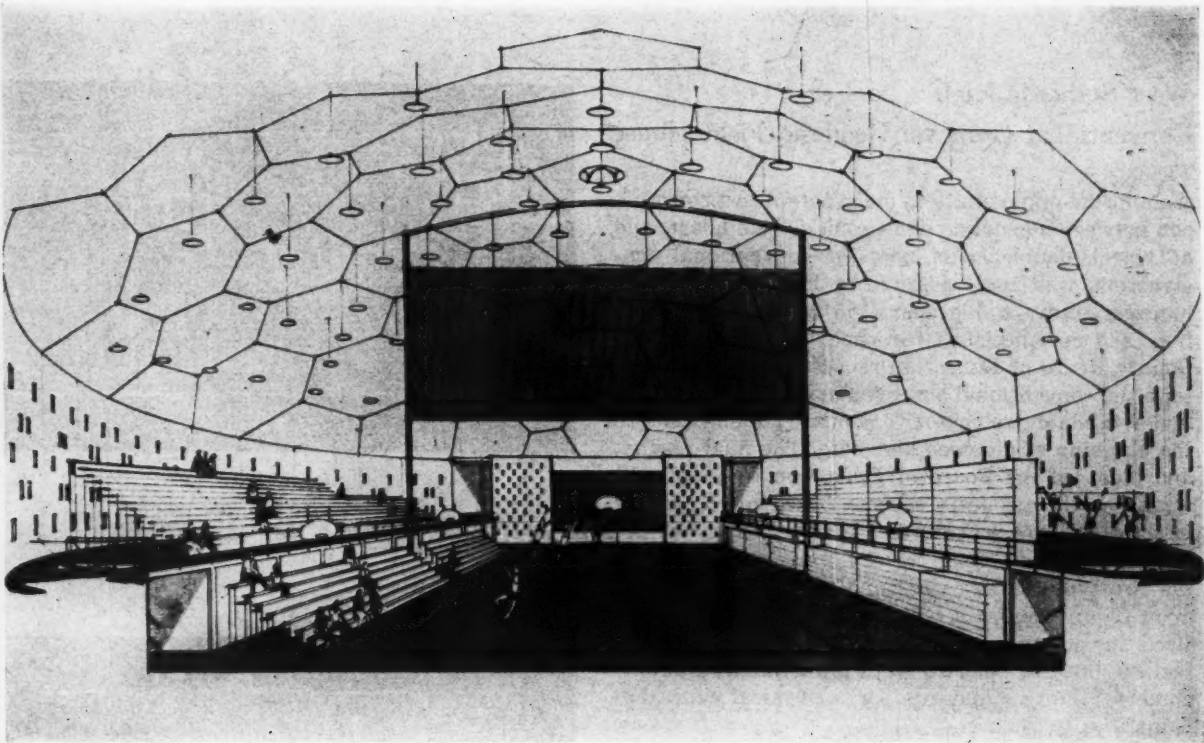


### Brooklyn Public School 46

The free-standing entrance canopies of the school, as well as the retaining walls, have sculptural inserts by Nivola. These were set in forms and became the negative sculptures when the forms were stripped. (Photo upper left).

Corridors are zoned to 5 classrooms each, and have colorful, durable finishes: plastic faced block and glazed brick, acoustical ceilings, vinyl covered display boards. Other interiors have plastic faced block under chalk boards and as continuous base, and colorful, plastic laminate tops and faces for all storage cabinets; all cabinets are standardized. All clocks, signs and identification symbols are extremely well designed for the building





## GEODESIC GYM GIVES MORE FOR LESS

**NAME:** *West Bethesda High School*

**LOCATION:** *Montgomery County, Maryland*

**ARCHITECTS:** *McLeod and Ferrara*

**STRUCTURAL ENGINEER:** *J. Gibson Wilson, Jr.*

**MECHANICAL ENGINEERS:** *Kluckmuhler and McDavid*

**ELECTRICAL ENGINEER:** *Kenneth W. Cobb*

**GEODESIC DOME CONSULTANTS:** *Synergetics, Inc.*

**CONTRACTOR:** *Merando, Inc.*

Results of a comparative cost study on a conventional gymnasium vs. a geodesic "field house" won a victory for the geodesic scheme for the West Bethesda High School, now under construction. The architects were able, by virtue of a grant from the Educational Facilities Laboratories, (Ford Foundation), to carry out a research project to determine cost and space advantages of each. Plans and bids were made on both types of structures. The geodesic scheme came out with 4,000 more sq ft of usable space, slightly less cost.





## West Bethesda High School

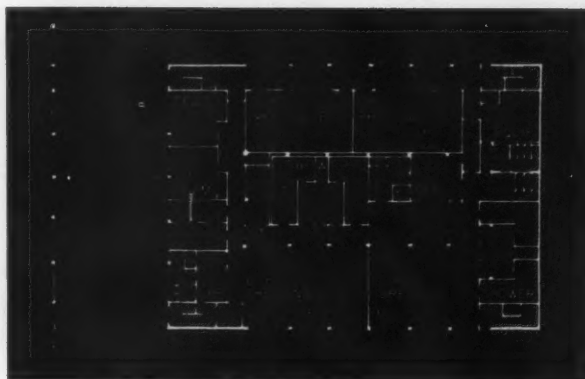
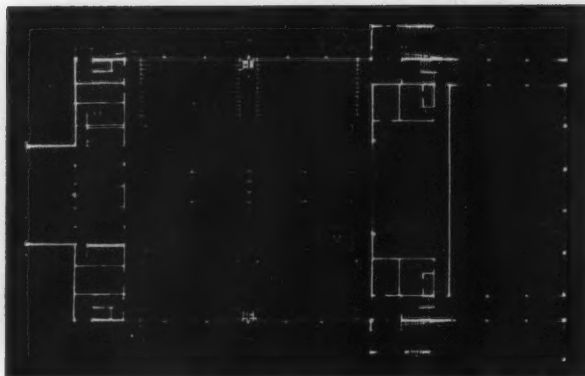
### Conventional Gym vs. Geodesic Field House

An unusual opportunity to make actual cost comparison between a geodesic dome gym or field house, and a typical, double court, gym of conventional construction, was made possible by EFL's grant to finance a study, and preparation of working drawings and specifications for each. The Montgomery County Board of Education reportedly wanted more than the conventional box gymnasium, and yet were understandably reluctant to commit public funds to the planning of a domed alternate. The final results, and bids, led the Board of Education to adopt and construct the geodesic scheme based on R. Buckminster Fuller's structure.

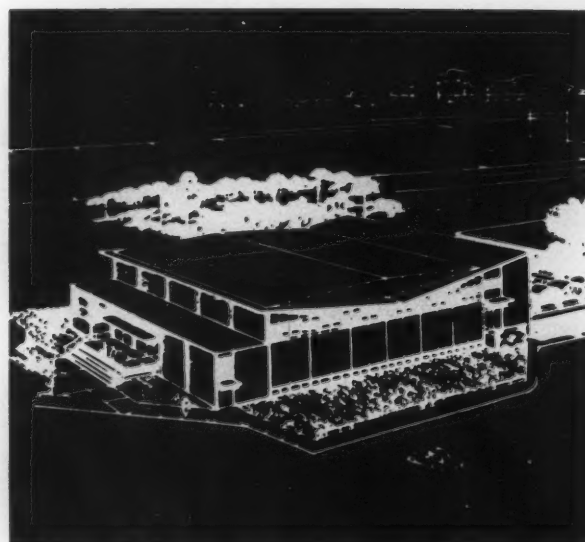
Conditions set down for the study required that the two types satisfy the same program and equipment requirements: it was not intended that the designs for either type reflect an absolutely minimum facility, but that the two types meet the usual Montgomery County standards for a physical education plant.

Bids were taken on three items: the main school excluding the gym; the standard gym; and the geodesic field house. Site work was taken as a separate bid for each item for better comparison. A breakdown of the successful contractor's bidding on the two gyms is shown below.

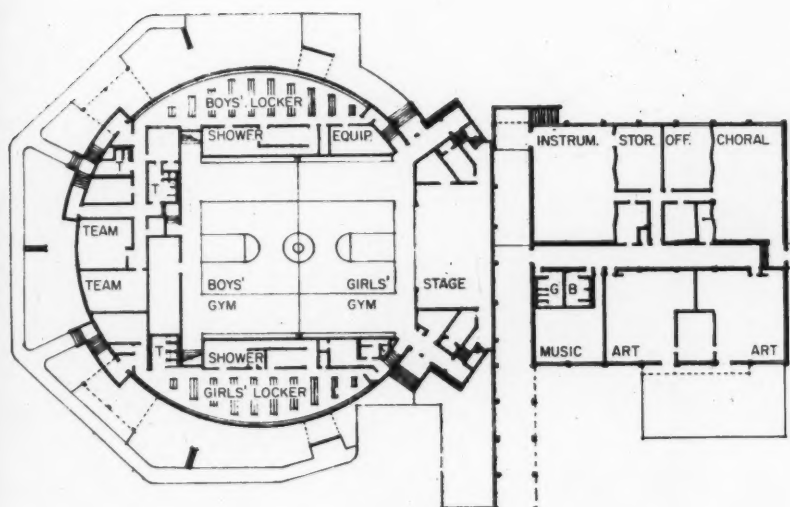
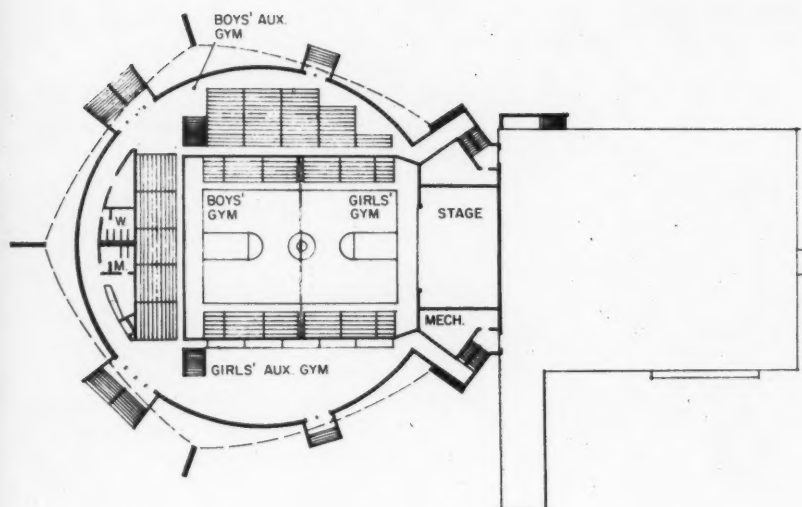
A full report of the study, Case Studies of Educational Facilities #1, is available from Educational Facilities Laboratories, 477 Madison Ave., New York City.



Item	Conventional Gymnasium	Geodesic Field House
Building Excavating and Backfilling	\$ 10,915	\$ 9,272
Concrete	98,500	94,450
Masonry	71,000	62,000
Structural Steel	37,000	64,100
Ceramic Tile	13,700	11,000
Metal Windows, Curtain Walls, Screens, and Panels	20,000	5,000
Metal Doors and Frames	5,000	6,000
Miscellaneous Metals	7,400	8,000
Insulation, Roofing, and Sheet Metal	12,200	46,778
Calking, Weatherstripping, and Thresholds	1,300	1,500
Carpentry and Millwork	26,460	24,189
Acoustical Ceilings	7,750	
Resilient Floors	3,250	800
Glass and Glazing	1,400	450
Furring, Lathing, Plastering, and Stucco	11,480	4,920
Painting	16,000	20,310
Toilet Partitions	1,075	1,285
Furnishings and Special Equipment	72,492	60,106
Plumbing, Heating, and Ventilating	112,000	100,535
Electrical	55,000	57,200
Miscellaneous	5,839	5,779
	<b>\$589,761</b>	<b>\$583,674</b>



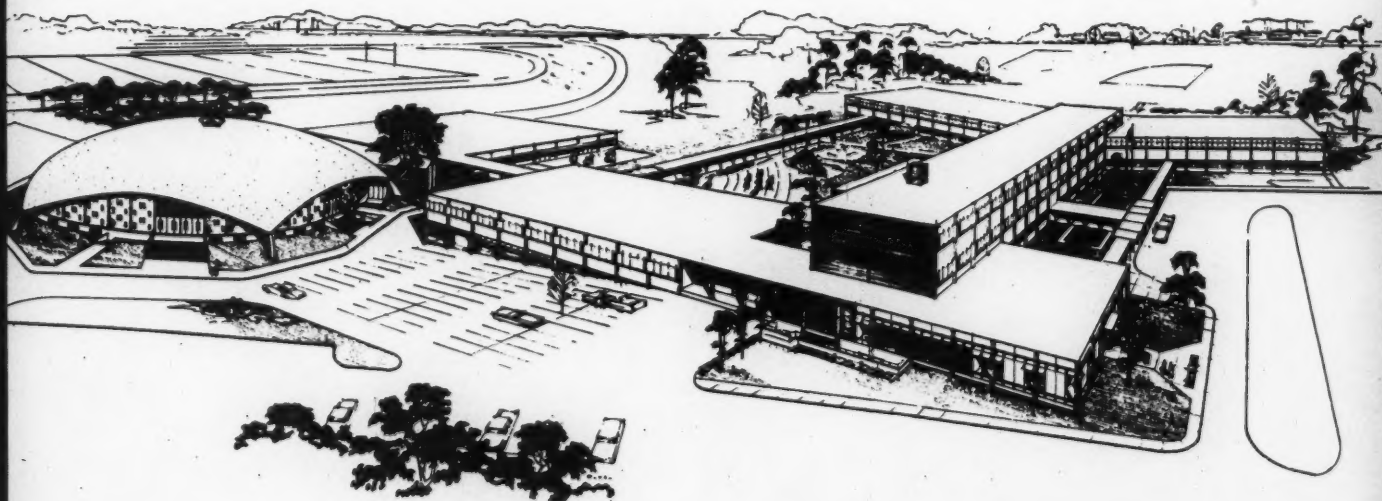




THE CONVENTIONAL GYM (sketches on black, opposite page) has floor area on two levels of 31,586 sq ft, has space to seat 2500 spectators. Gym areas are divided by a motorized folding wood partition.

THE GEODESIC FIELD HOUSE (the circular part of the plans and sketch on this page) contains 35,800 sq ft, space to seat 3500 spectators. The gym is divided by a reinforced plastic divider which can be automatically raised vertically. The playing floor is wood.

THE ENTIRE SCHOOL was planned for a total construction cost of \$3,150,000. The school is planned for an eventual curriculum change requiring varying size instruction spaces. Thus all general subject spaces have partitions which can be rearranged as needed. The entire plant will be air conditioned.





# PRECAST VAULTS ADD PLAYFUL AIR TO GRADE SCHOOL

NAME: *Vista Grande Primary School*

LOCATION: *Daly City, California*

ARCHITECT: *Mario J. Ciampi*

ASSOCIATE ARCHITECT: *Paul W. Reiter*

LANDSCAPE ARCHITECT: *Lawrence Halprin*

STRUCTURAL ENGINEERS: *Ellison, Sedgewick & Associates*

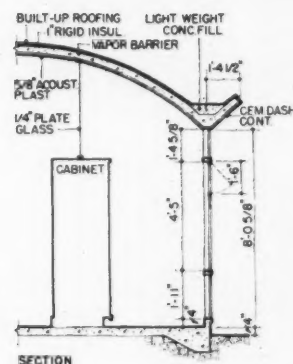
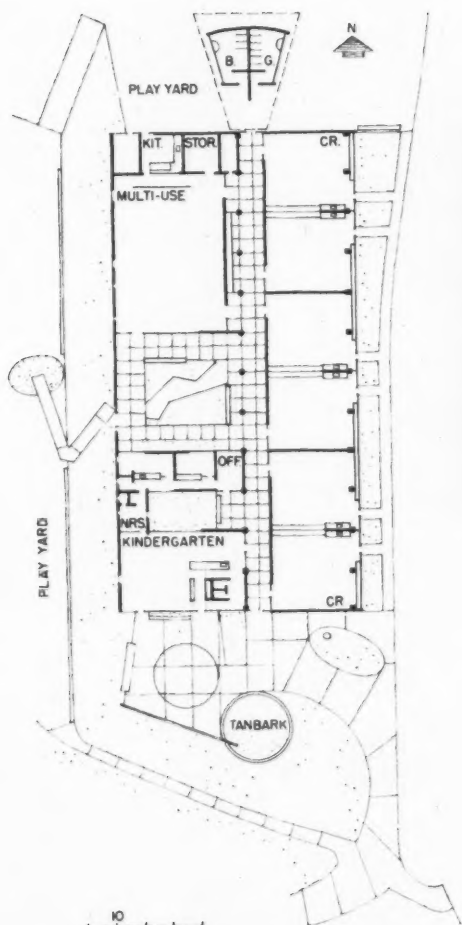
MECHANICAL AND ELECTRICAL ENGINEERS:

*Buonaccorsi & Murray*

This festive little school is a good demonstration that limited funds need not prevent the creation of a stimulating environment for children.

The building was built under the so-called "austerity program" of the California State Aid Program of school construction. The program called for a six-classroom, plus kindergarten, primary school with multi-use room, administrative unit, and dependent facilities. The site is a limited, hillside one in a densely populated urban area. Problems of vandalism and maintenance were serious factors.

The architects provided a very pleasant, compact and workable plan, roofed by a system of precast, thin-shell, reinforced concrete barrel vaults, and precast concrete bents. The vaults were topped by built-up roofing with aluminum coating. Acoustical plaster was used to finish the underside. The vaults, two to a classroom, rest on a sort of low "garden wall" construction of reinforced concrete block. Floors are concrete slab on grade, with a colored concrete finish. Classroom and administration areas have radiant heating installed in the slab, unit heaters elsewhere. Partitions are movable for future changes. The system makes for a minimum of maintenance, low insurance and long life. Total cost of the project was \$253,300 (\$199,900 for building, \$53,400 for site work). Gross area of the school is 14,160 sq ft.







Karl H. Rick





## WELL EQUIPPED, LOW-UPKEEP SPACE IS ECONOMY BASIS

NAME: *Darien High School*

LOCATION: *Darien, Connecticut*

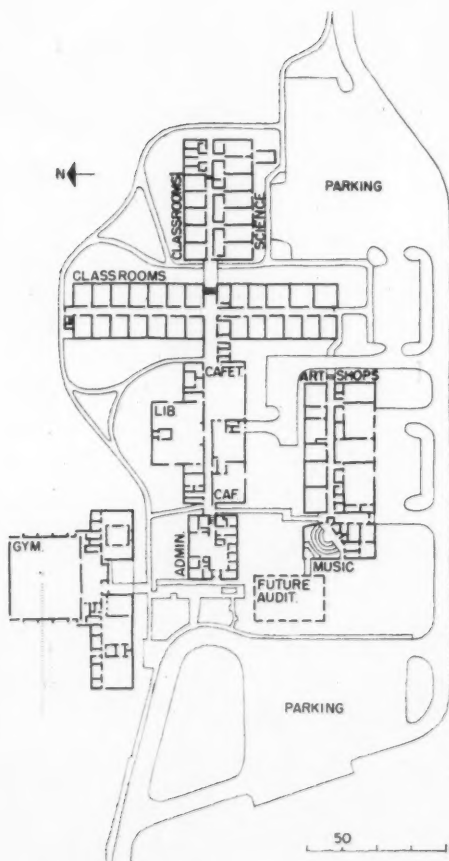
ARCHITECTS: *Ketchum and Sharp*

MECHANICAL ENGINEERS: *Cosentini Associates*

STRUCTURAL ENGINEERS: *Severud-Elstad-Kruger-Associated*

SITE ENGINEERS: *Tregenza & Briglia*

CONTRACTORS: *The Deering Company*



This Senior High School, which has a present classroom capacity of 1,000 students, offers some very interesting ideas for providing a well equipped (there are seven science labs), sound building at reasonable cost—\$14.93 sq ft.

As so often happens, the school was faced with a program cut-back in its earlier stages: the original budget was for \$3,400,000, and was later cut to \$3,000,000. Rather than provide "cheaper" (and usually higher maintenance) construction, three major economies helped provide for the program.

First, spaces were developed for multiple use. The cafeteria doubles as a study hall, and a second, smaller dining space also serves as a small auditorium or lecture hall for about 200 people. The teachers' dining area, which adjoins this, doubles as a stage, and is closed with a folding partition.

Secondly, after study, some spaces were reduced in area. The prime example was the gym, reduced by 33 per cent, and reportedly working well, with good scheduling, for the school and community.

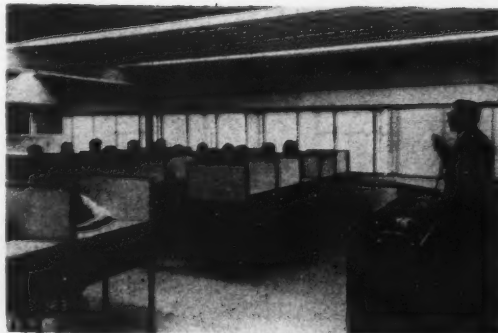
The cafeteria uses a "supermarket" technique to cut waiting time in line to a minimum, and thus speed up time for lunch periods: hot meals are picked up from two motor-operated turntables, each of which holds 14 plates and makes a revolution a minute.

Third: temporary economies resulted from postponing the building of the auditorium.

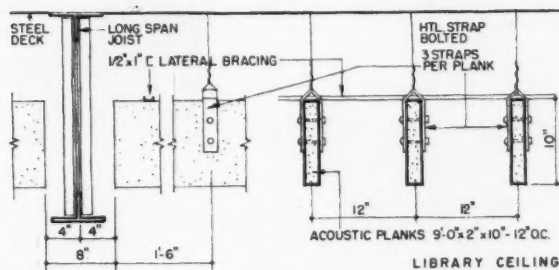
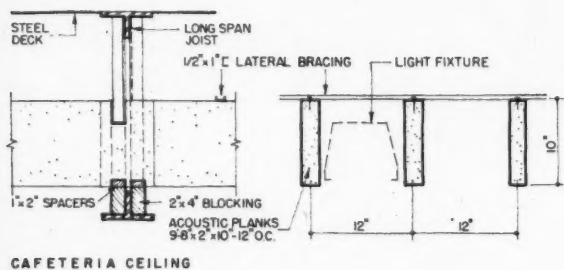
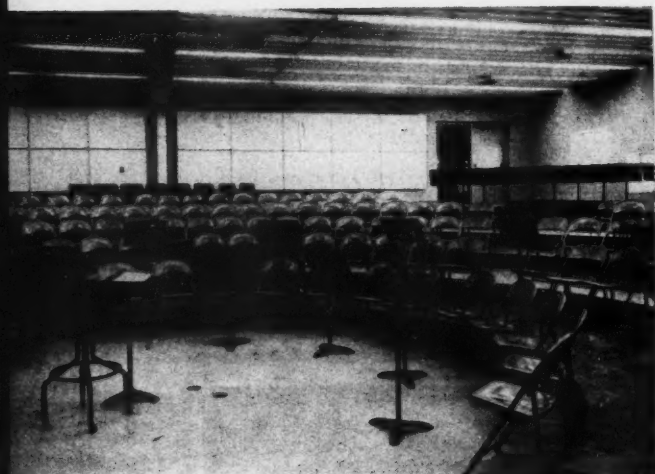
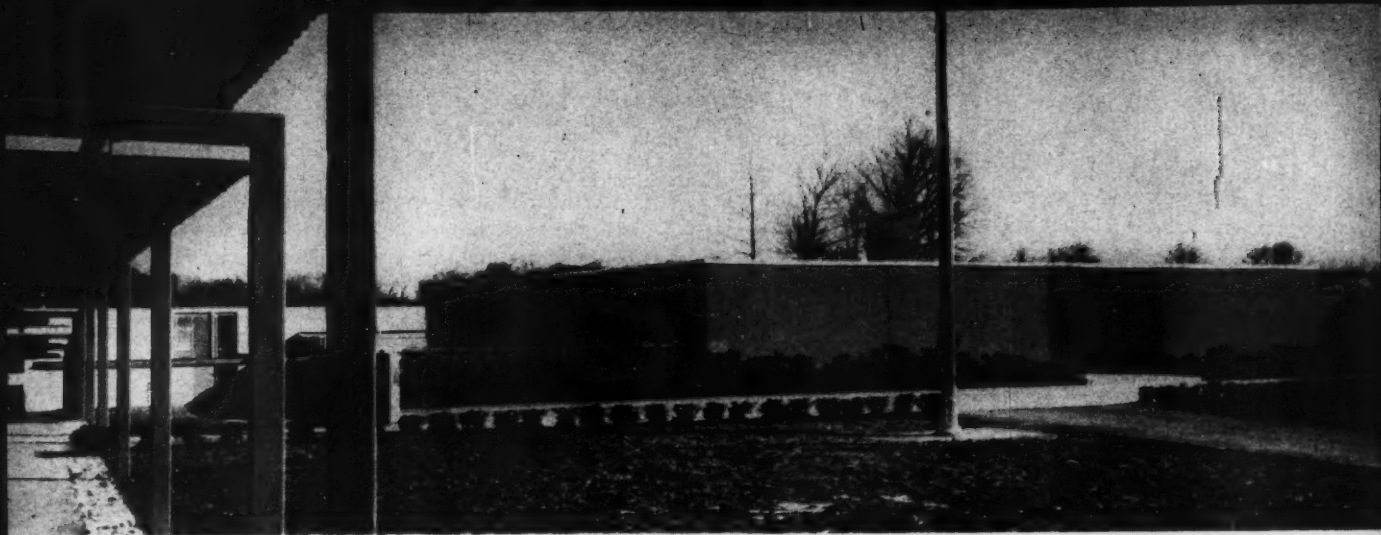
Durable materials include gray cement and blue-glazed brick exteriors, steel deck roofing.



GU Amiga









# A BUDGET CAMPUS SCHEME REPLETE WITH MURALS

NAME: Woodlawn High School

LOCATION: Shreveport, Louisiana

ARCHITECTS: William B. Wiener, Morgan and O'Neal

STRUCTURAL ENGINEERS: E. M. Freeman & Associates

MECHANICAL ENGINEERS: Carl M. Hadra and Associates

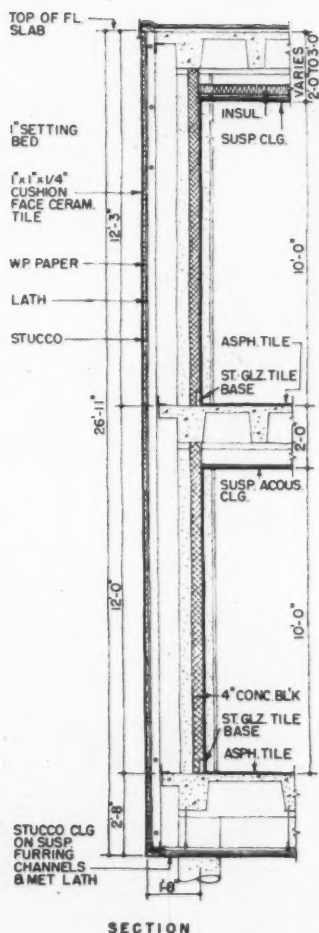
CONTRACTOR: W. A. McMichael Construction Co.

ARCHITECTURAL ART: Sam Weiner Jr.

The idea that a budget school must, of necessity, be of compact, barracks austerity, is skillfully refuted once again by this extremely pleasant high school. The program required a well-equipped, 1500-capacity school for grades 10, 11 and 12, with emphasis on the community use of cafeteria, auditorium and gymnasium. The site is a 54-acre, heavily wooded one, with soil conditions making it mandatory that all buildings be placed on pile foundations and suspended concrete floor slabs.

A campus scheme was evolved which placed all academic activities in a three-story wing, and all joint school-community facilities in connecting buildings, with planted courts between. The pleasant atmosphere was further enhanced by integrating abstract murals into the brick and concrete wall surfaces. The structural frames are concrete and steel; exterior walls are brick and porcelain enamel panels. Interiors are concrete block and glazed tile, with floors of asphalt tile or terrazzo, ceilings of suspended acoustic panels.

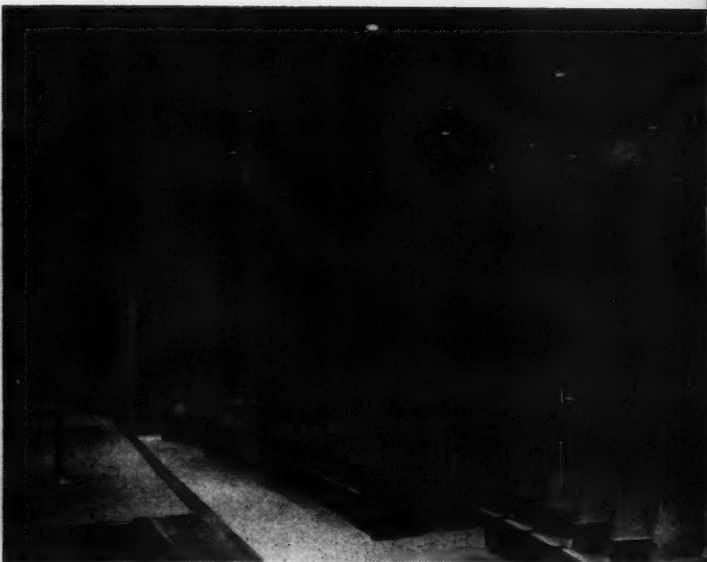
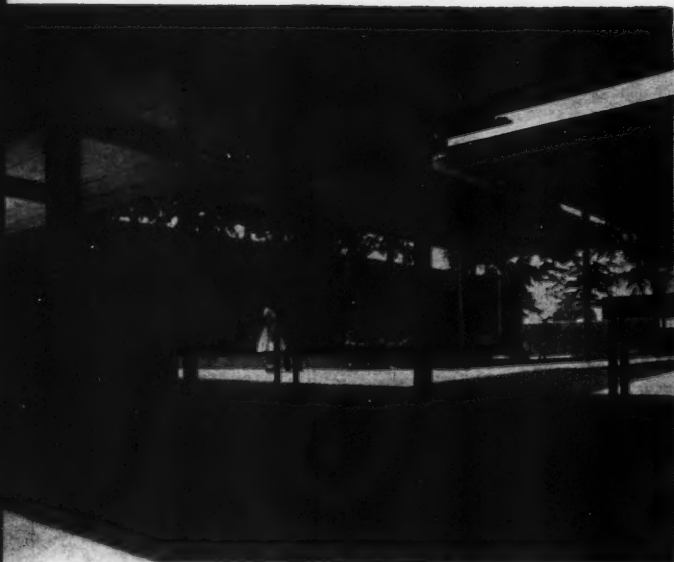
The actual building cost of the project was \$2,266,444, or \$1510.97 per pupil, \$13.72 per sq ft. This included \$285,300 for special foundation conditions; excluding this brings costs to \$11.99 per sq ft.







Film Arbor Studio, Inc.





## A CHALLENGE TO PROVIDE THE BEST FOR FIXED FUNDS

NAME: *Riverbank Elementary School*

LOCATION: *Stamford, Connecticut*

ARCHITECTS: *Curtis and Davis*

STRUCTURAL ENGINEERS: *Fraioli, Blum & Yesselman*

MECHANICAL ENGINEERS: *Tizian Associates*

LANDSCAPE ARCHITECTS: *Schreiner and Schmitt*

ACOUSTICAL CONSULTANT: *John A. Donohue*

The cost problem facing this school was not necessarily to design the most economical building, but rather to provide the best school plant and the most facilities within the funds available. The funds totalled \$1,058,000, and the program called for a K-6 school for 800 pupils which included 24 classrooms, two kindergartens, auditorium, cafeteria, gymnasium, library and administrative area. The site was 14 acres of rolling land.

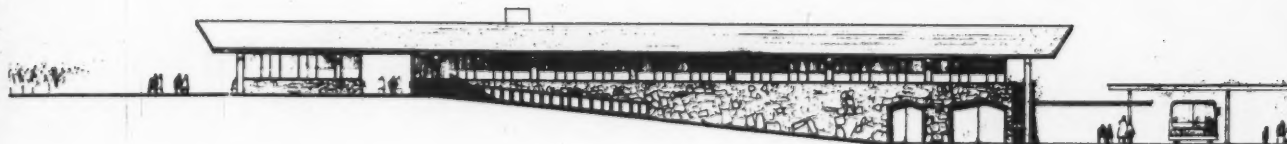
The final school, as shown here, represents the result of a considerable series of studies, whereby the architects sought to fulfill the following objectives: 1. develop complete separation of classroom areas from areas used by the community after school hours; 2. isolate all classrooms from noisy activity areas; 3. group and separate units requiring different types of structural systems (long span versus short span), for simplicity and economy of construction. A study was made to find the most economical method of construction for these spans—resulting in the use of steel columns and laminated wood beams and wood deck (which the architects found cheaper in this case in spite of higher insurance costs).

The obvious need for combining some of the major spaces led to an analysis indicating that a stage-cafeteria combination was best. It allowed the gym to be available for physical education throughout the day; it permitted a sloping floor with fixed seats for the auditorium; a sound deadening curtain made both stage and auditorium available as educational space.

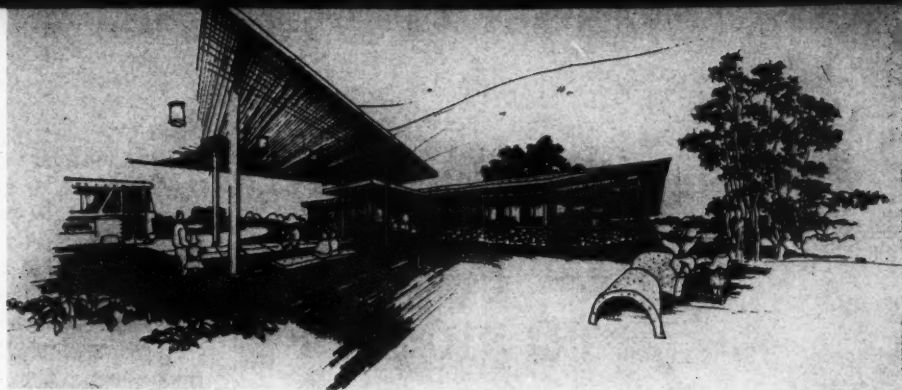
The cluster classroom arrangement also permits a corridor space which can double for teaching or display space. Classroom shapes were determined to some extent by best shape for viewing TV; all partitions are non-load-bearing and contain no utility lines for possible replacement by folding walls.



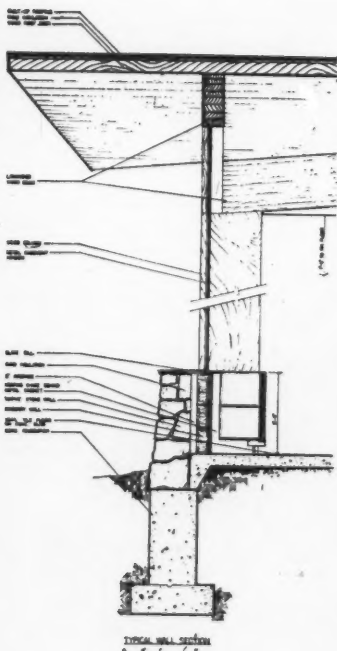
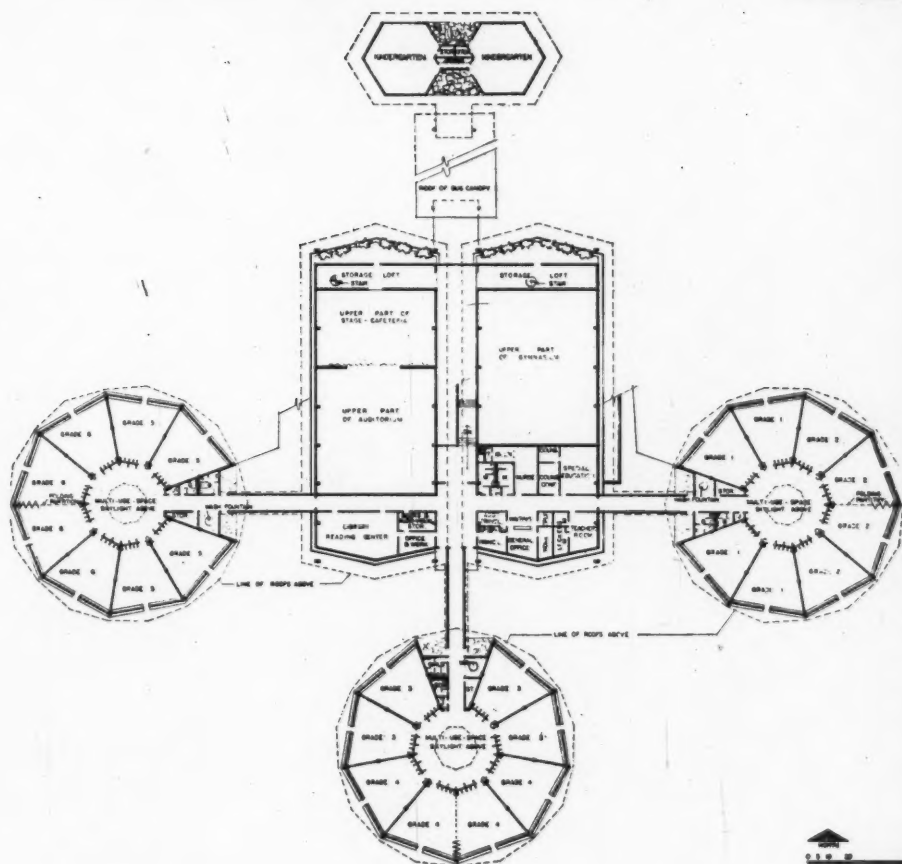
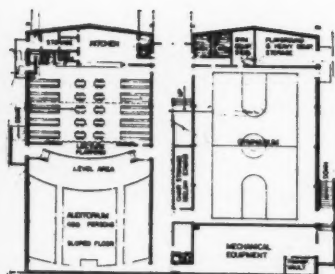
MAIN BUILDING



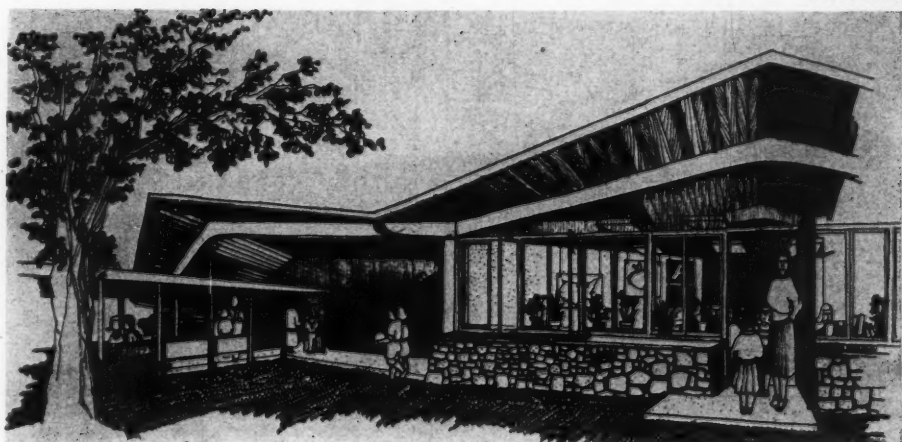




KINDERGARTEN



CLASSROOMS





# DISCIPLINE AND TASTE CUT COST TO \$10 SQ FT

NAME: *Richland Junior High School*

LOCATION: *Memphis, Tennessee*

ARCHITECTS: *Mann & Harrover*

STRUCTURAL ENGINEER: *John C. Brough*

MECHANICAL & ELECTRICAL ENGINEERS: *Griffith C. Burr*

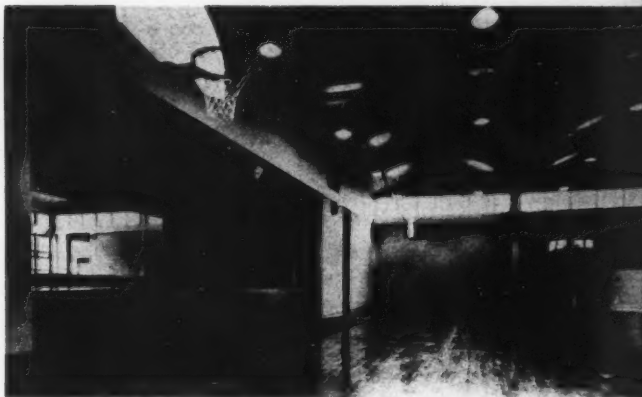
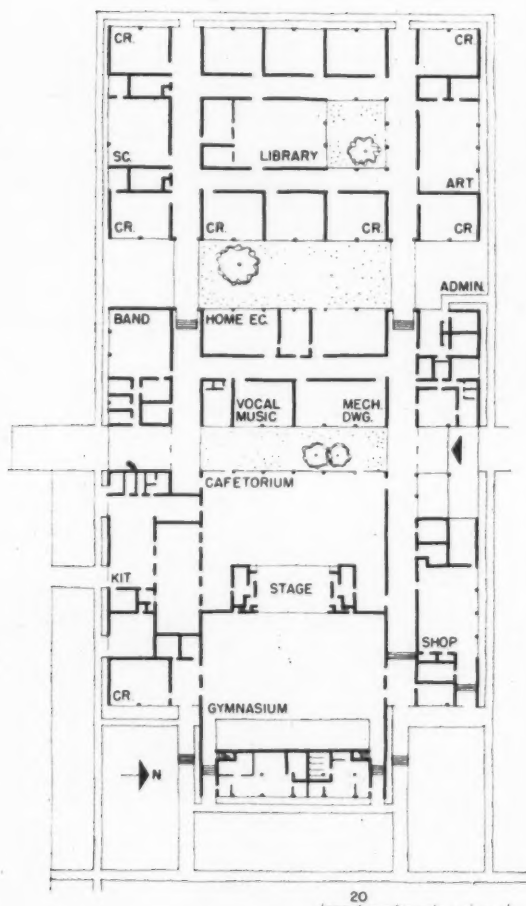
CONTRACTOR: *S & W Construction Co.*

This handsome, neatly organized junior high school, was designed to fit a standard program: ten classrooms; eight special classrooms, including a library; auditorium-cafeteria and gymnasium; and administration. It was also required that the building be easily expandable, economical in first and maintenance costs, and suitable for community use.

As constructed, the building comes off very well. By tailoring a regular structural system to fit the program and site—and by using simple, durable materials—the city obtained a good-looking, well organized and equipped school for the modest cost of \$10 per sq ft.

The site is a sloping one; a uniform roof line was effected by designing the school in three units, with the highest spaces (cafetorium, gym) at the lowest land level. The west unit, on high ground, contains classrooms and library, which faces on a court. The central unit contains home economics, labs, music rooms, and administration. This disposition allows evening use of the remaining facilities—shops, cafetorium and gym—for community use.

The structure is reinforced concrete, dominated by a post-tensioned folded plate concrete roof. Walls are brick, concrete block and porcelain enamel panels. Floors are quarry tile, ceilings acoustic plaster.









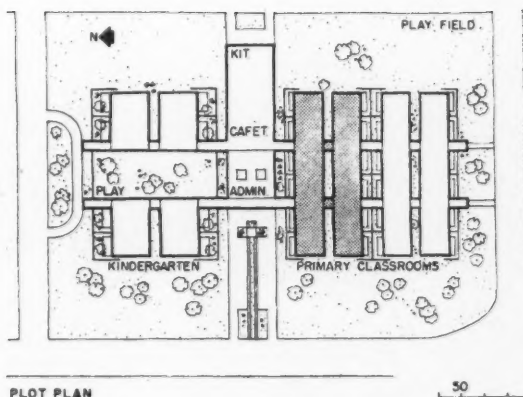
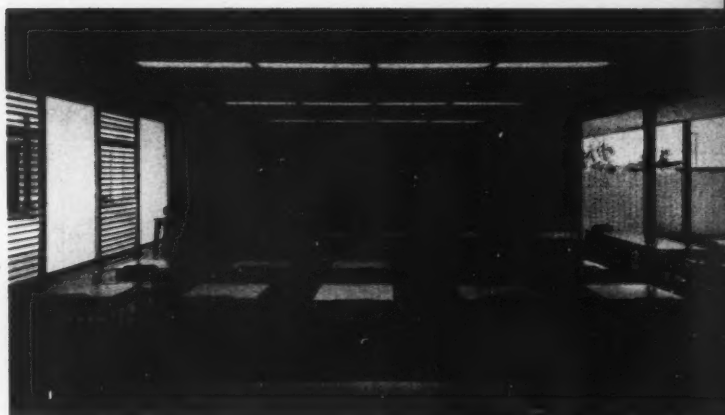
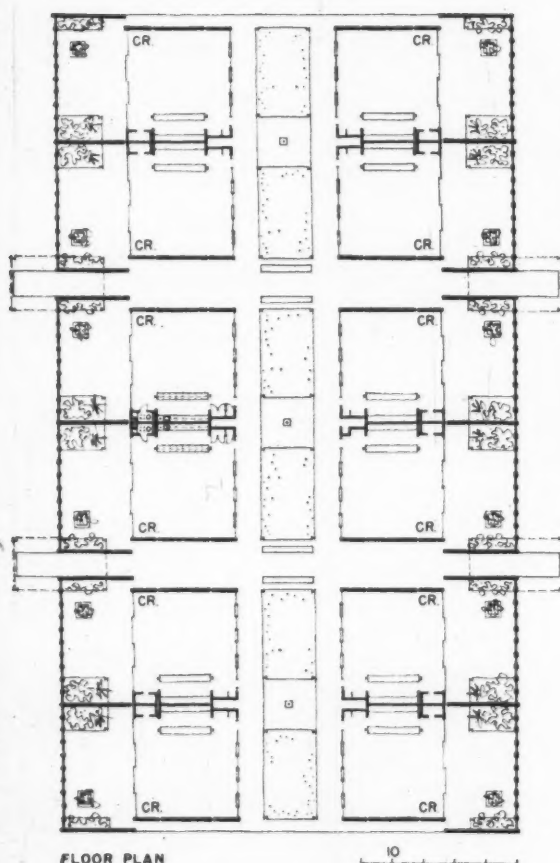
# EXPANSION SCHEME USES REPETITIVE CLASSROOM UNIT

NAME: *Amaryllis Park Primary School*  
LOCATION: *Sarasota, Florida*  
ARCHITECT: *Mark Hampton*  
STRUCTURAL ENGINEER: *J. C. Russello*  
MECHANICAL ENGINEERS: *Ebaugh & Goethe*

This elegant little school is the first stage (12 classrooms) of a scheme which will ultimately have 24 classrooms, 8 kindergarten rooms, an administration unit and a cafeteria with either a kitchen or serving pantry. (The completed part is shaded in the plot plan below.)

For maximum economy in both first stage and future development, the scheme was based on a concept of self-contained units that could be added to the school plant as needed. Each unit is a double-classroom arrangement with consolidated utilities; the units were also designed to allow plumbing to run free of paving, to allow outside access to the heater (for code and maintenance), and to give as much counter space, tackboard, pegboard and chalkboard area as possible. Each classroom includes an outdoor instruction area.

To simplify later additions, a structural system of exposed steel in 16 by 16 and 16 by 28 ft bays was worked out. All materials were carefully chosen for cost, scale, visual and maintenance requirements: walls are buff concrete block; floors are buff vinyl asbestos; ceilings are sprayed acoustic plaster. Cost of the 12 classroom unit was \$243,235.17 or \$11.69 for 20,800 sq ft (with covered areas at  $1\frac{1}{2}$ ).







*Philip H. Hiss*







*Philip H. Hiss*

### **Amaryllis Park School**

The unifying appearance of the exposed steel structure, and some very nice detailing, negate any possible monotony from the repetition of the basic classroom units. (Photos above). The tall open pavilion visible is now used as a covered play shed, and is part of the future covered walkway which will link successive wings of the school.

As sharp accents to the basically beige-toned building, all exposed steel is painted black and gravel stops white. The corridor wall is made up of white translucent plastic panels alternating with a "weathered-gray" stained wood jalousie; entrance doors are aluminum clad, bright colored. Interior cabinet work is natural birch; core walls are surfaced in yellow tile





# Architectural Engineering

## Prestressed Industry Profile

Facts and figures on the nature and size of the prestressed concrete products industry are given in 8-page report presented in the June *Construction Review* published by the Business and Defense Services Administration, U. S. Department of Commerce. One of the most interesting statistics pertains to growth of this industry in the last decade—from five or six plants in 1950 to more than 200 at the end of 1959. In 1959 plants used 1,200,000 cubic yards of concrete; 90,000 tons of steel especially made for prestressing operations; and 45,000 tons of conventional types of steel. Structural members for buildings exceeded those for bridges and waterfront structures by 10 per cent based on cubic yards of concrete. There were 163 companies fabricating building members. More plants (117) produced double tees than any other item. Other types included single tees, channel slabs, I-beams and joists, T-joists, inverted T-beams and rectangular beams, flat slabs, lintels, wall panels, box beams, tapered girders, monowing tees and trusses.

## Home-Made Electricity from Gas Turbines

The gas industry (and electric utilities too) along with architects and engineers will be watching the performance of gas turbine installations in buildings for generating electrical energy on the spot as well as providing energy to heat and cool these buildings. A 900 kilowatt generator is being used at Park Plaza shopping center in Little Rock, Ark. to supply electricity to a supermarket, bowling alley, discount department store and 27 other shops. Waste heat from the turbine is converted into steam for heating and for absorption refrigeration. A natural gas burning turbine utility package will be installed also in a division office of Northern Illinois Gas company outside Chicago. This unit will produce 400 cycle current for fluorescent lighting and will be converted to 60-cycle for other applications.

## Scientific Plumbing

The problem of providing plumbing drains and vents which are adequate, but not unnecessarily large and costly, has been studied at the National Bureau of Standards. Current plumbing codes differ in their requirements on sizes of pipes for these systems. The study has resulted in equations, tables, and charts to compute pipe dimensions ample but not excessive in size. The study was concerned primarily with the mechanics of flow in main vertical drains and vents (stacks). Pertinent charts and illustrations were developed showing velocity of water in vertical drains, rates of air flow, hydrodynamic pressures, and permissible plumbing loads. The report, *Capacities of Stacks in Sanitary Drainage Systems for Buildings*, NBS Monograph 31 (1961) is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. for 35 cents.

## Tubular Steel Made for Buildings

Almost two years ago we wrote about the growing interest in tubular steel structures. The point was made that, "In architectural circles, tubular steel structures have for many years been thought of principally in terms of the dramatic space-frame constructions—bridges, towers, exhibition buildings, et al—so common abroad. With the exception of the pipe column, which can surely be no mystery to any designer, structural uses here have been limited to the quasi-architecture of radio and TV towers, and oil-well drilling masts." This article, which dealt with welded steel tubing, went on to point out how the availability of this material had made possible a variety of curtain wall constructions, canopies, and even served as the exterior columns for a 24-story office building in Dusseldorf, West Germany. Recently several steel producers have announced the availability of hot-rolled steel structural tubing in square and rectangular shapes up to 8 by 8 in. in size. One of the main deterrents against the use of steel tubes for building has been cost; and a prime reason for this has been that steel tubing has been produced primarily for industries outside the building field. Now steel producers are offering tubing with properties in line with those of hot rolled structural sections.

## This Month's AE Section

*HIGH-RISE STRUCTURES IN HAWAII COMBINE PRECAST, POURED CONCRETE*, p. 176. *TECHNICAL ROUNDUP*, p. 182. *TIME-SAVER STANDARDS: Store Lighting*, p. 184. *BUILDING COMPONENTS: Plastics*, p. 189, *Products*, p. 193, *Literature*, p. 194.



# HIGH-RISE STRUCTURES IN HAWAII COMBINE PRECAST, POURED CONCRETE

by Alfred A. Yee

Alfred A. Yee & Associates, Inc.

Structural Engineers

Honolulu, Hawaii

*Rapid advancements in the mass production of precast, prestressed concrete components are aiding Hawaii's increasing need for high-rise buildings. Where the framing system must have a clear span of 30 ft or more, the utilization of these components tied together compositely with cast-in-place lightweight concrete can bring about very significant cost savings. Also wherever ground conditions require piling, prestressed concrete piles can furnish the necessary support at low cost. Prestressed units also can provide a building framing system which is simple to erect and offers flexibility for mechanical services*

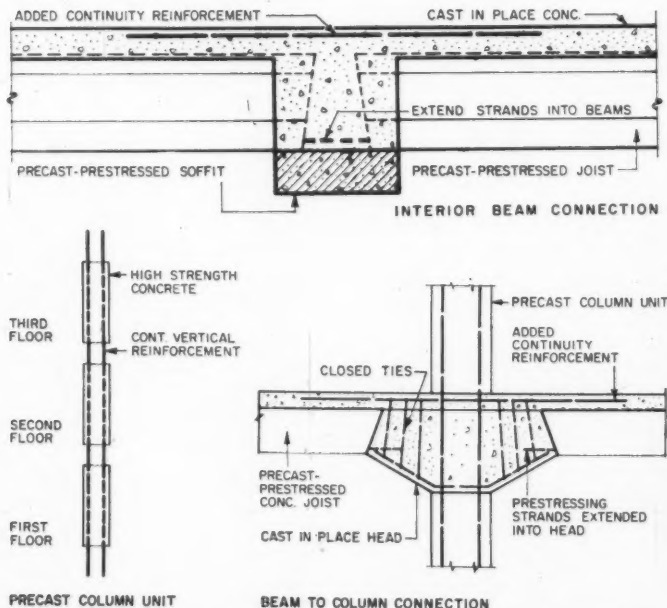
## 1. TEAMING PRECAST, POURED CONCRETE EFFICIENTLY

Our experience has shown that simplicity of erection and handling of utilities can be achieved by utilizing a combination of precast units and cast-in-place concrete in a composite system. Framing for a typical floor in this system requires precast, prestressed joists and beams cast with stirrups in the top flange to develop composite structural action with the cast-in-place floor slabs. On the job, the units are individually hoisted into position.

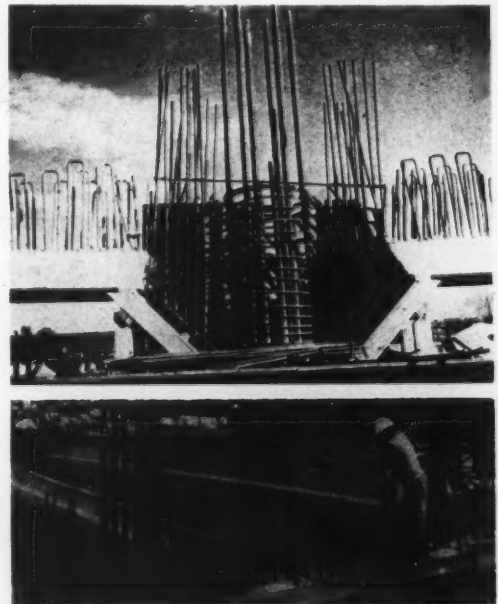
To achieve the highest efficiency, all connections between precast units should develop full bearing and continuity (detail below and page 177). The connecting ends can either rest on, or butt against, intersecting units, with mild steel reinforcing added in the poured slab portion to serve as continuity ties. In this situation no steel bearing plates, bolts or weld points are required.

**Tolerances.** Precast concrete units cannot be manufactured with the

same degree of precision as machine-shop-produced steel units. Some dimensional deviations from specified alignment, camber and length will exist in precast units. Fortunately, however, under the composite method all of these dimensional inconsistencies can be easily absorbed by the cast-in-place concrete with no sacrifice in structural strength. Cast-in-place concrete forming the spandrels and slab also completes the jointing media between precast units; thus



**Top:** In this composite connection between precast, prestressed joists and a poured-in-place interior beam, the joists rest on a precast, prestressed "soffit." **Bottom:** Several floors of columns may be precast as one unit, with spaces in the column at each floor for continuity reinforcement. Column head is poured-in-place



The prestressed "soffit" becomes part of the beam through use of stirrups pre-embedded in the unit. The "soffits" are connected to columns by poured-in-place corbels. The "soffit" units may range in length from 15 to 45 ft



the entire deck frame is compositely "glued" together to resist both lateral and vertical forces.

**Precast Columns.** One of the most encouraging of recent cost saving developments has been in the field of precast concrete columns or combination column-beam units which are adaptable for use in either low- or high-rise buildings.

One of these methods permits the precasting of several floors of columns in one unit (page 176). In the multiple-column units, vertical reinforcing steel is continuous throughout, but spaces are left in the concrete portion of the column at each floor level to accept continuity bars for the intersecting beams. The joint between beams and column can be completed with a cast-in-place column head.

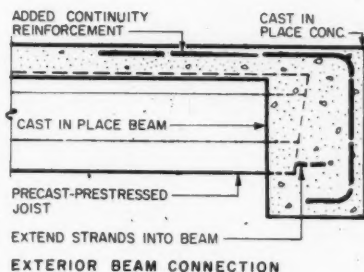
There are several advantages in using precast columns. Where the building site is located in a congested area, and there is little room to store materials and equipment, columns can be precast at a central plant and hauled to the site for erection. Because of the nature of precast work, these columns can be made with a high quality architectural finish. Precasting saves much formwork and shoring, and the construction can progress much faster. However, where buildings are higher than 10 stories, the column sizes usually become quite large for handling and, therefore, must be spliced often. There may be difficulty in developing the full load transfer at these splices because of the greater amount of vertical reinforcing steel necessary in these heavily loaded columns.

In general, for buildings below 10 floors, columns can be precast, and above 10 floors should be poured. When buildings have about eight or nine floors, it is open to question whether they should be poured-in-place or precast, and the answer depends upon structural and architectural considerations.

**Beam Ends.** Ends of the beam units are tapered to develop more favorable bearing stress patterns and the beam's prestressing tendons are extended into the cast-in-place portion for additional tie. Spalling at this joint is prevented by the use of small diameter mild steel reinforcing cages in the corbel area near the ends of the beams. Full continuity is assured by adding mild steel in the composite deck slab.

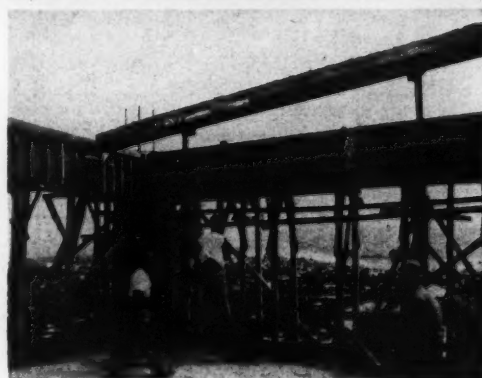
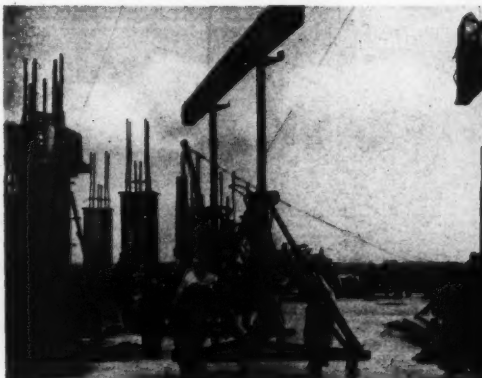


Alfred A. Yee (far right) with partners Ben Ranada, Kalfred B. T. Lum study a scale model of a special prestressed beam erection method devised by their office for high-rise buildings. Lifting davits attached to two columns place the beams on movable tripods for final positioning. This davit system was used for the office building shown on the following page; conventional crane was used for lower floors



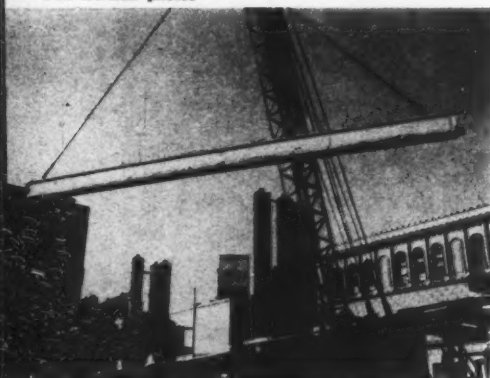
Composite connection of prestressed concrete joists to spandrel beams is shown in the detail. This system was used in the 25-story structure below. Beams were moved into position on rolling tripods whose vertical posts telescope to lower beam. 1441 Kapiolani Boulevard Office Building, Honolulu; Architects & Engineers: John Graham and Co.; Contractor: Hawaiian Dredging Construction Co., Ltd.

Ben Ranada Photos





Ben Ranada photos



64-ft prestressed concrete girders are hoisted by boom of conventional crane on lower floors



The girders are shown in place ready to receive slab form work. Columns are poured-in-place



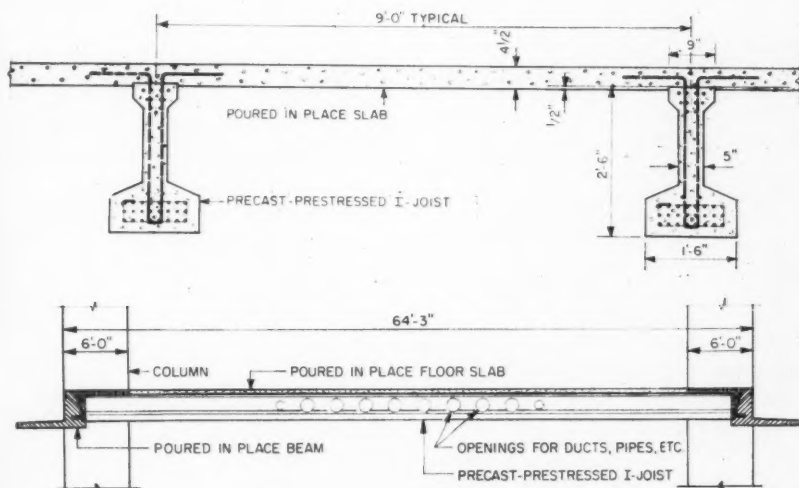
Forming and pouring of the floor slab is accomplished through use of a climbing crane

## 2. ACCOMMODATING UTILITIES

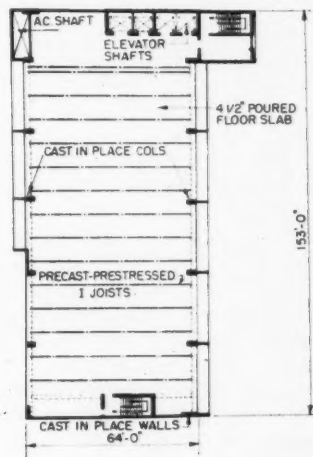
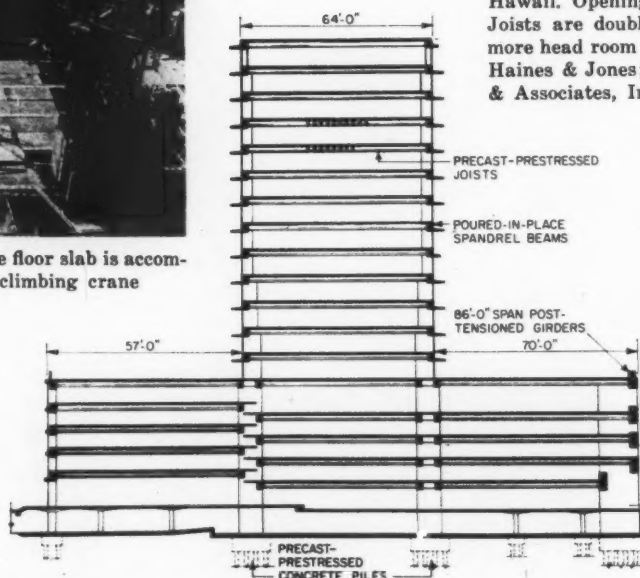
For maximum economy in the use of mass-produced precast units, the variety of beams and joists should be held to a minimum. If unusual loads or other irregular conditions occur in the deck framing, it is possible in most cases to use the same kind of components throughout by simply doubling them up for additional strength or altering the spacing to meet the situation.

In the 19-story building shown here, a traffic jam of air conditioning ducts leading into the main air conditioning shaft created a headroom

problem. Precast, prestressed joists, which had been evenly spaced for the rest of the deck frame, were doubled up adjacent to the congested area and thickness of the cast-in-place slab was increased. This left the area near the shaft free of joists, thus providing the required head room while maintaining adequate structural strength. Air conditioning ducts, wiring and plumbing were accommodated with no loss of head room throughout the remainder of the floor area by casting the joists with holes in the webs.



Prestressed girders are tied compositely to the floor slab by stirrups in the 19-story First National Bank of Hawaii. Openings in joist web accommodate services. Joists are doubled near air conditioning shaft to get more head room for ducts. Architects: Lemmon, Freeth, Haines & Jones; Structural Engineers: Alfred A. Yee & Associates, Inc.; Contractor: E. E. Black, Ltd.





### 3. THE PRECAST "COLUMN TREE" CONCEPT

One of the most recent developments in multi-story framing is the so-called "column tree" concept. Principal components of this system are combination column-beam units and precast, prestressed joists. We have employed "column trees" successfully in a number of multi-story buildings. The tallest thus far is nine floors, now under construction.

A typical "column tree" unit consists of a precast column with contiguous, branch-like beams projecting out at the various floor levels. The joists rest on these "branches" of the tree. The first three floors of the column-beams are normally cast as a single unit, with all "trees" for the upper floors cast individually for ease of handling and placing.

The base of the column fits into a concrete socket in the footing which is cast to a dimension somewhat larger than the column. First a grout pad is put down into the bottom of the socket to exact elevation. When the grout pad hardens, after a day or so, the column is set on the pad at the exact vertical elevation. Then the column is adjusted laterally in either direction or rotated clockwise or counterclockwise as necessary. This oversized concrete socket has permitted all of these adjustments, even though the footing or column may not have been cast to exact dimension. Finally, the gap between the socket and the precast column is filled with expansion grout for permanent anchorage.

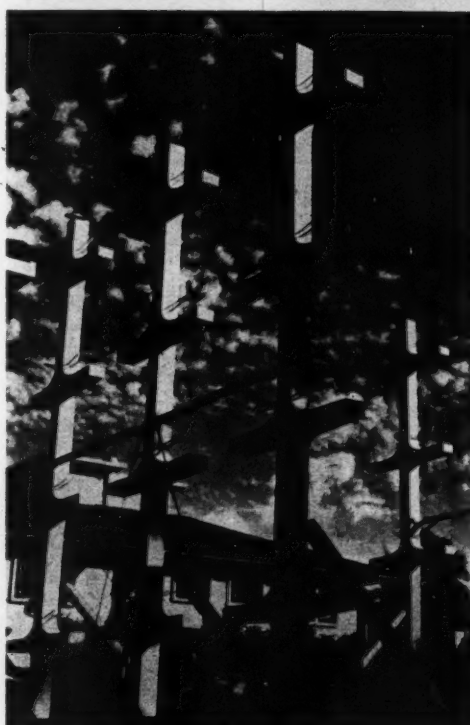
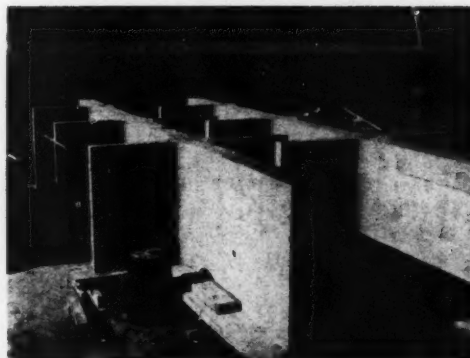
The space between the "branch" ends of adjacent "column trees" offers a decided advantage since it can be utilized for running air conditioning ducts, plumbing and other utilities close up against the deck slab with a resulting savings of head room. At the same time, "column tree" units can be designed so that they closely follow stress lines, making reinforcement placing simple and effective. In the completed structure, lateral forces are resisted by shear walls and the cast-in-place floor slab acts as a shear diaphragm tying together all precast components at each floor level.



Bob Johnson

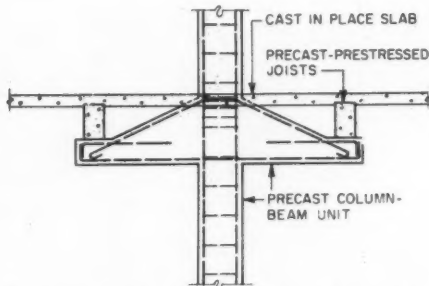
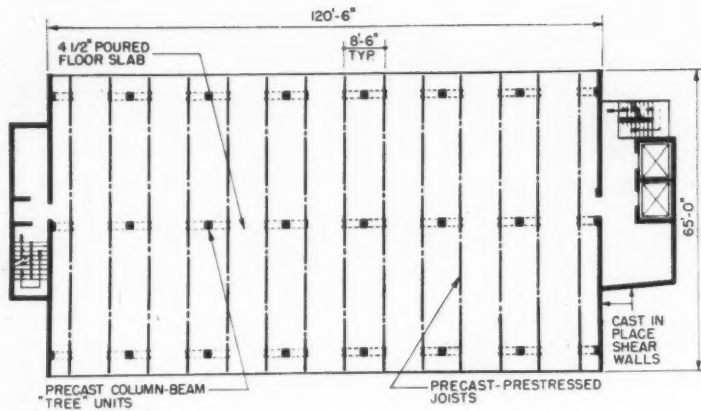
Scale model of apartment building which utilizes the "column tree" concept. The four-story "trees" are precast in one piece. (Details of the structural system are on the following page.) Towers Corporation Apartment Building, Waikiki, Honolulu. Architects: Bassetti, Morse & Tatom; Structural Engineers: Alfred A. Yee & Associates, Inc.; Contractor: T. Takahashi, Ltd.

Erection sequence of the "column-tree" apartment building. Top, left: "Column trees" were cast in a five-layer sandwich; note how they were staggered to save space in the contractor's yard. Top, right: First column is lifted at the site. Below, left: "Column trees" in place after eight hours' time. The units have been plumbed, positioned and placed to final dimensions. Below, right: All "column trees" and precast, prestressed beams for the second and third floors are up after 16 hours' time

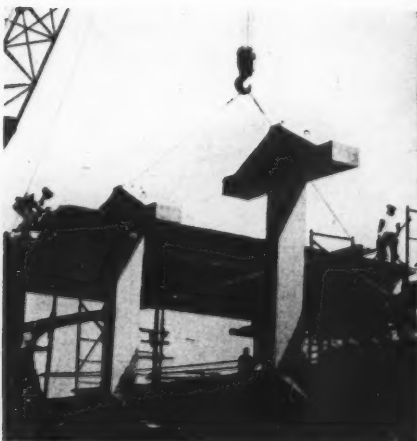
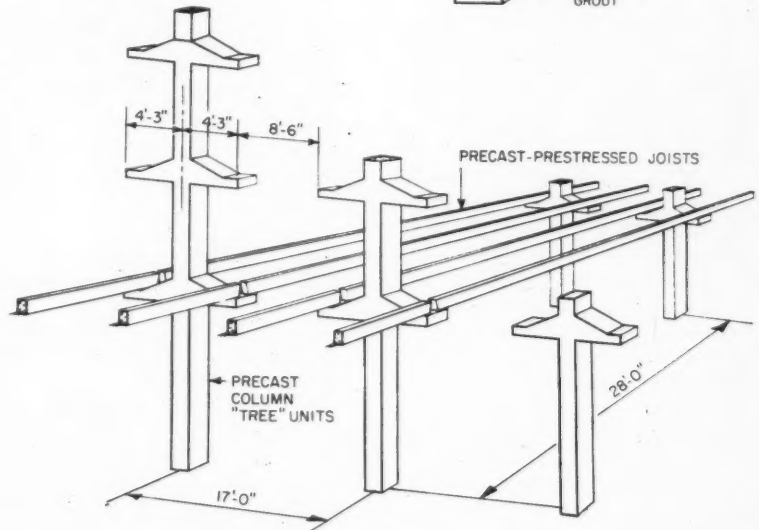
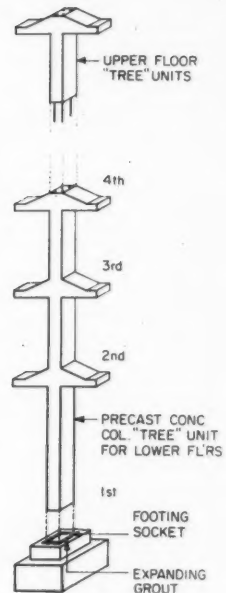




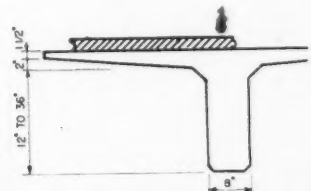
## Part 3 Continued



Prestressed joists are supported by the "branches" of columns. Dimensions in the sketch right are for a building under construction. The first three levels of "column trees" are precast in one piece; upper floor "trees" are precast in single-floor units for ease of handling. Precast units are tied together with a cast-in-place floor, which acts as a shear diaphragm to transmit lateral forces to shear walls. Detail above shows reinforcing pattern (follows stress lines) of a "tree"



Ben Ranada photos



A two-story warehouse and laboratory uses "column trees," but in this case precast Lin-Tees form the floors (detail right gives general dimensions for this type of unit). This technique permitted construction of a two-story addition over an existing warehouse. Architect: George W. McLaughlin; Structural Engineers: Alfred A. Yee & Associates, Inc.; Contractor: Rothwell Construction Co., Ltd.



## 4. PRECAST PILES ECONOMICAL IN VOLCANIC SOIL

If Hawaii's builders have made significant advances in the use of precast, prestressed components for high-rise structures, it has been possible only because they first solved a variety of perplexing foundation problems. The island's basic volcanic substrata are literally interlaced with erratic deposits of sand, clay, boulders and coral reef. It is not uncommon to have a difference of as much as 50 ft in the driven length of piles which are only 3 ft apart.

Precast, prestressed concrete pilings have proven to be the most satisfactory solution thus far. Because of the prestressing action, the concrete will take a great deal of punishment from the driving hammer which permits the piles to be driven to extremely high bearing capacities. This, of course, means considerable savings can be realized through a reduction in the number of piles required for a given column load and a consequent reduction in the size of concrete pile cap and reinforcement.

Equally important is the relatively low initial cost. Eighteen-inch, octagonal, prestressed piles have been sold at the plant for as little as \$5.23 per lineal foot, and driven at the con-

struction site to carry a design load of 200 tons each.

To meet the inconsistent ground conditions mentioned earlier, it has been imperative to develop a simple and economical method of pile splicing. A dowel splice has been used extensively with 18-inch octagonal piling. Experience, however, has shown that the dowel connecting the two pile sections can occasionally cause severe damage. Chipping at the splice point may cause the pile contact points to disintegrate, with the result that the dowel begins acting like a driving wedge which eventually destroys the connecting units.

Elimination of the dowel has provided a simple solution. Recent tests have shown that the "steel-can" splice collar by itself is capable of developing all the strength needed to resist the bending movement of connecting piles under actual driving conditions. On a recent job a pile driving rig with the hammer resting on the top pile toppled over shortly after making a splice. The upper of the two connecting piles broke off just above the splice joint, which was still exposed above ground. Despite its inconvenience, the accident

offered solid proof that the "can" splice was stronger than the piles it connected.

### Lightweight Concrete

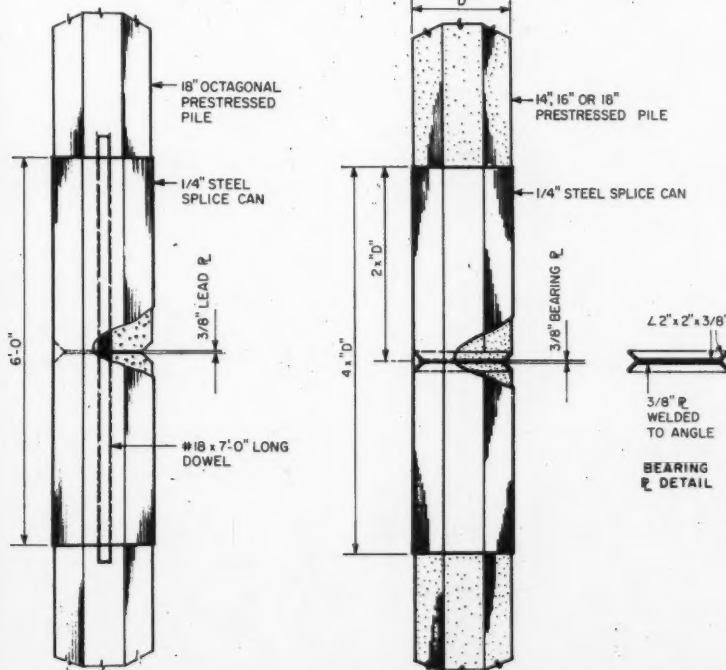
One other recent development that must be included in any discussion of multi-story construction in Hawaii is lightweight concrete. Commercial operations have now begun on two deposits of lightweight pumice aggregate. This material is giving designers a new opportunity for reducing building weight, a critical factor in high-rise construction.

These aggregates can easily produce 3000 to 4000 psi concrete weighing about 105 pounds per cubic ft. This concrete is being used for cast-in-place composite slabs, walls, spandrels and columns. With these basic structural elements reduced in weight, pile footing costs are saved, and additional savings are realized through a significant reduction in the amount of concrete and reinforcing steel required in the structure.

*This article is derived from a talk given at the Western Conferences on Prestressed Concrete Buildings sponsored by the Engineering and Sciences Extension of the University of California*



Splicing an 18-in. octagonal prestressed, precast concrete pile



Left: Pile splice detail showing use of both the steel splice can and dowel  
Right: Pile splice detail with dowel eliminated



## Vibration Isolation System Shuts Out Bowling Alley Noise

A new ceiling isolation system utilizing cross-ribbed neoprene pads counteracts noise and vibration generated by bowling alleys located over a floor of offices in the renovated Strand Building in Brooklyn.

### Wide Application

According to the acoustical consultant, Lewis S. Goodfriend and Associates, Montclair, New Jersey, the same isolating principle can be used either when extreme vibration must be contained or when an unusually low vibration and noise level must be maintained.

Because the noise problem was discovered after the installation of the bowling equipment, the isolation system was designed to meet existing conditions. The system as used was considered both effective and economical for the given conditions.

Pin-setting machines and rolling bowling balls on the second and third floors created vibration which was transmitted through building structural members. Isolation of noise due to vibration was a prime consideration in order to provide office space on the first floor.

By isolating the first-floor ceiling from the second floor, engineers determined that noise and vibration would be reduced to below that acceptable for office space. Isolation of the walls was not considered necessary.

A conventional ceiling isolation approach considered involved rubber-in-shear vibration hangers. However, these hangers would have had to be spaced at 4 ft intervals. Many of them would have been attached to the floor at points where some vibration could be transmitted

from the floor through the hanger to the ceiling, according to Goodfriend. This approach, although entirely satisfactory in many applications, was ruled out because of the magnitude of vibration.

The acoustical engineers decided isolation efforts should be concentrated at the rigid structural steel members rather than at points along the concrete floor. Their solution, utilizing the cross-ribbed isolating pad is shown in the bottom figure.

Proper compressive loading of the isolating pad is the key to its effective use. The isolating system shown is the original method developed. It can be modified to accommodate individual problems found in specific installations.

The material, designated MB Iso-mode Pad by its manufacturer, MB Electronics, New Haven, is predominantly used to isolate vibrating machinery of all types.

### System Details

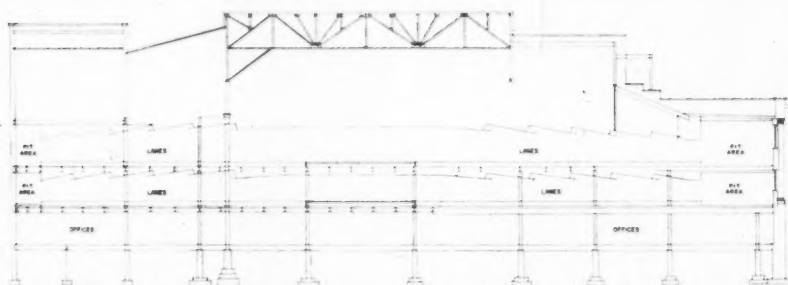
Ideally, vibration should be isolated at a point as close to the source as possible. In the Strand application, vibration traveled from the second floor through the main structural members to subsidiary members. The joints between the main structural members and the lightweight joists used to support the ceiling were chosen as isolation points.

Two layers of neoprene pad were inserted at the beam-joist joints. A steel bearing plate and a steel wedge were used as illustrated to create proper loading surfaces for the pad. Approximately 4 sq in. of pad were used to bring the pad loading figure to 50 lbs per sq in.

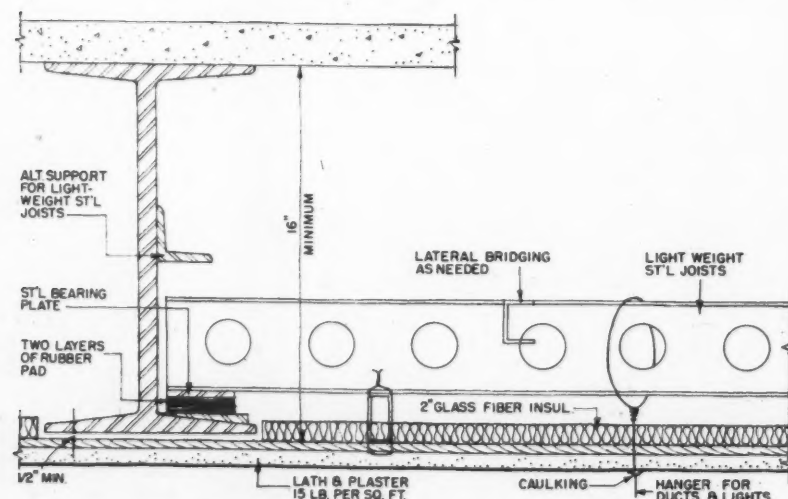
The number of layers of pad needed for a given installation is a function of the disturbing frequency. In this application, two layers were recommended so that better than 75 per cent isolation could be obtained in the hearing range of humans.

An air-tight 15 lb per sq ft lath and plaster ceiling with a 2-in. thick glass fiber blanket backing was hung from the joists. All lighting fixtures and ducts were suspended below the monolithic ceiling. Holes drilled in the ceiling for fixture hangers were sealed with a non-hardening caulking compound. Ceiling edges were sealed in the same manner.

Remodeling was done by Braverman Construction Co., Inc.



Bowling alleys on upper floors of remodeled theater building had to be isolated by neoprene pads and suspended ceiling before space below could be used for offices



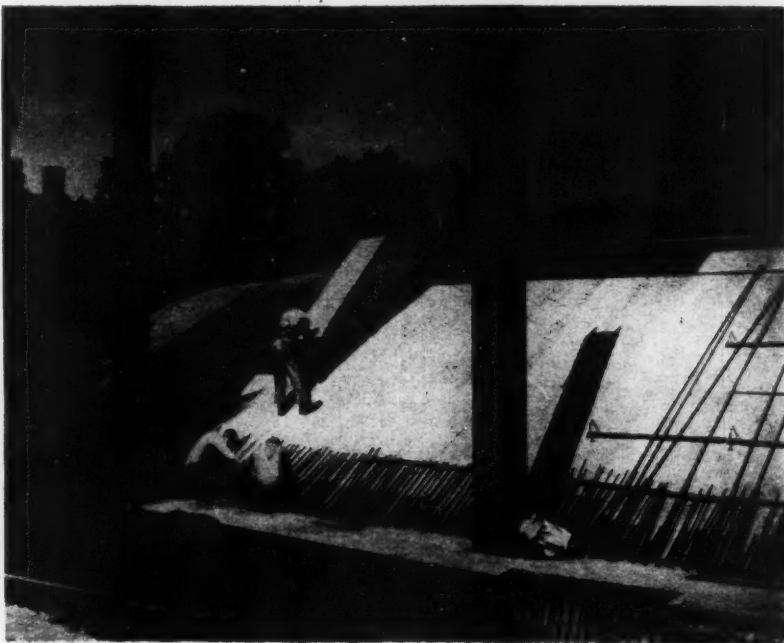


## Mound of Earth, Plastic Planks Provide Thin Shell Form

The 240-ft thin shell concrete dome for a 7200-seat auditorium in Anderson, Ind., has been poured over a mound of gravel, and after curing will be hoisted into final position atop 36 steel columns by hydraulic jacks. A compression ring of concrete, 36-in. wide and 24-in. deep will be post-tensioned to take outward thrust.

The 26,000 cu yd of gravel used to mold the dome were topped by sand and then covered with 1-in. thick sheets of Styrofoam expanded polystyrene which serve as both a permanent form liner and as insulation. Concrete is poured after the steel reinforcement has been laid over the expanded polystyrene. When the dome is erected the Styrofoam will serve as an insulator and a base for the plaster.

Architects for the Warner Auditorium of the Church of God are Johnson, Ritchhart and Association.

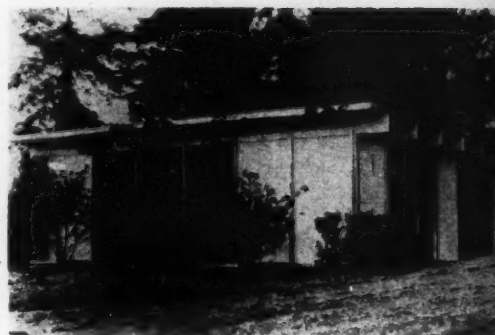


## Epoxy Resin Glues Together Aluminum and Plastic Shell House

Epoxy resin is the only material used to fasten the post-and-beam structural components of a 24 by 28 ft plastic and aluminum shell house, designed by architect George Frederick Wise and chemical engineer Max C. Weiner for Major Realty Corp. of Philadelphia.

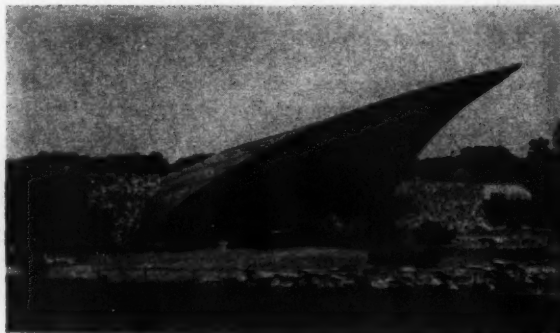
Structural aluminum mullions which are part of the wall panels are attached to the wood sill by epoxy resin. The wall panels are rigid polyurethane foam sandwiched between

and exterior sheet of plastic-coated aluminum and an interior sheet of hardboard, sealed with polyvinyl acetate. Reinforced fiberglass plastic beams, 3 by 12 in., in turn are glued to the aluminum mullions with epoxy. Finally the roof panels, laminated sandwiches of rigid polyurethane foam between two layers of fiberglass reinforced plastic, are laid on top of the beams with epoxy as the adhesive. This shell without finishing sells for about \$3000.



## Liquid-Applied Plastic Forms Roofing for a Plywood Canopy

A 7500 sq ft fir plywood hyperbolic paraboloid canopy for a bowling center in Willow Grove, Pa., features medium blue roof covering of fluid-applied neoprene- and Hypalon-based material. The roofing was placed in four coats to give a total thickness of 20 mils. Neoprene chips were applied between the two pigmented Hypalon-based coats to provide texture. The membrane weighs less than 20 lb per 100 sq ft. Architects are Powers, Daly and DeRosa.

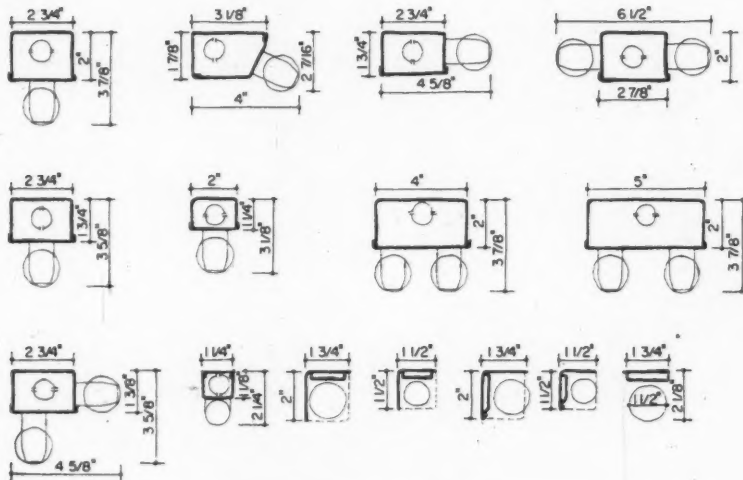




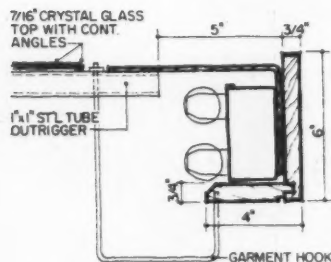
## LIGHTING FOR STORES: 2 — Equipment; Electrical Outlets

by Daniel Schwartzman, F.A.I.A., Architect

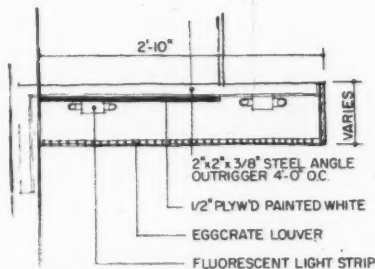
### (Conclusion)



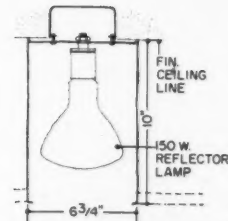
Typical Fluorescent Light Strips



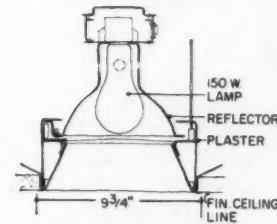
Typical Light Cornice



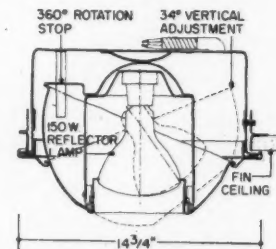
Lighted Soffit at Back Wall



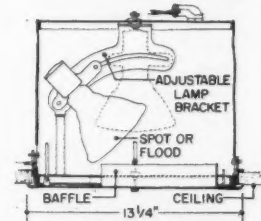
Cylindrical Downlight



Recessed Downlight



Adjustable Accent Light



Recessed Adjustable Accent Light

### OUTLETS

All interior columns should have one duplex convenience outlet about 14 in. above the floor; one duplex convenience outlet about 12 in. below ceiling; and one telephone receptacle. All exterior columns should have one duplex outlet about 14 in. above floor.

#### Outlet Locations:

- Cashier's Room for Calculating and adding machines
- Cloth winder measurograph machines
- Pilot lights for all machines, executive office equipment
- Luggage stamping machines
- Alteration Room for: Steam irons, sewing machines, steam generating unit boiler, pants pressing machine
- Stationery department pen stamping machine
- Drinking fountains and dispensing machines
- Hospital sterilizer and stove
- Pharmacy sterilizer and stove
- Carpentry shop power equipment
- Ticketing machines in marking areas
- Store time-card clocks
- Burglar protection
- Sprinkler wiring system
- Local fire alarm system
- Store clock system and dismissal bell
- High and low water alarm
- Automatic time control system of exterior signs
- Ventilating smoke and heat detection
- Annunciator System
- Automatic time control for show window lighting
- Telephone system
- Pneumatic tube blower system
- Service bell at receiving platform
- Night bell at store entrance
- Cash register outlets on electric circuit separate from lighting circuits.



## WHO LOOKS AT THE ROOF?


No one has to look at the roof of this award-winning building (AIA Award of Merit, 1961), because a Ruberoid roof was applied.

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**RUBEROID**



DENVER-HILTON HOTEL, DENVER, COLORADO  
Architect: I. M. Pei and Associates  
Roofing Contractor: Asphalt Products Company  
Ruberoid Specifications: Special Roofing Bitumen, Asphalt Felt, gravel surface





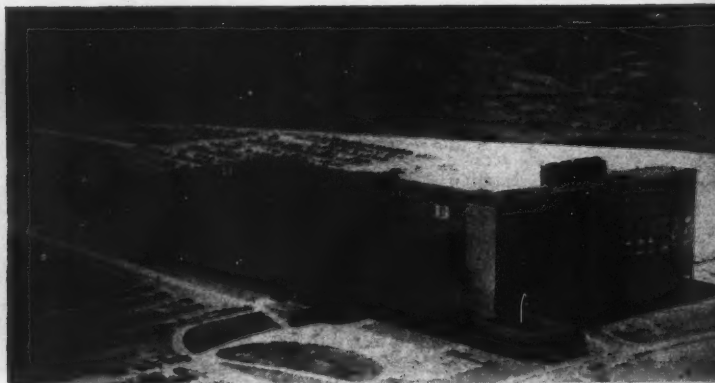
Space is divided in multiples of "one window" modules, each with its own row of lighting. Switching must change with partitioning, to give employees convenient control of lights in new rooms.

G-E Remote-Control switches located permanently inside each door to corridor, control 24-volt relays in corridor boxes. 277-volt light circuits, run to same boxes, are turned ON and OFF by relays.

## How Remote-Control Wiring changes and maintenance in



Flush relay boxes near corridor ceiling, are inconspicuous yet easily accessible. They simplify routine maintenance as well as switching changes.



G-E Remote-Control Wiring is used in 10-story administration building of huge new Baltimore home for Bureau of Old-Age and Survivors Insurance.





To make switches control different lights, maintenance man simply changes terminal strip connections between the General Electric Remote-Control relays and switches, in proper box.

In minutes, he makes the conversion, from corridor — without new wires—without cutting holes—without interrupting office work. He doesn't even have to enter a room.



# lowers the cost of partition the Social Security Building

The Administration building of the Bureau of Old-Age and Survivors Insurance in Baltimore, Maryland, was designed to provide maximum flexibility of office space. Each typical floor has a permanent central corridor running the length of the 10-story building. Office space on either side of the corridor is sub-divided by movable metal partitions.

A flexible system of lighting control was needed in order that partitions could be relocated as required, without expensive construction or interruptions

to provide each office with its own light switch.

The photographs and captions on these pages show how General Electric Remote-Control Wiring was installed to meet this requirement of complete flexibility. For further information about this installation — or for other ideas that can help you to cut costs of partition changes and maintenance for your clients with G-E Remote-Control Wiring — write to General Electric Company, Wiring Device Department, Providence 7, Rhode Island.

**General Management**  
of design and construction  
for Social Security Building:  
General Services Administration

**Associated Architects:**  
Meyer and Ayers, Fisher, Nes,  
Campbell and Associates

**Mechanical, Electrical  
and Civil Engineers:**  
Whitman, Requardt,  
and Associates

**Structural Engineer:**  
Van Rensselaer P. Saxe

**General Contractor:**  
McCloskey and Company

**Electrical Contractor:**  
The Howard P. Foley Company

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**





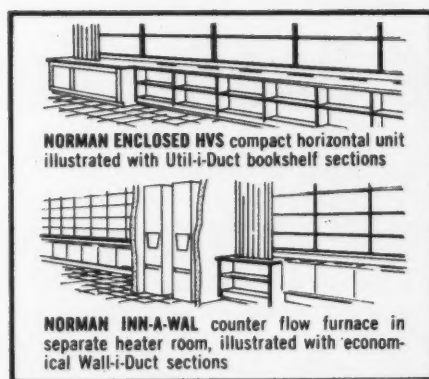
38,500 Square Feet...18 Classrooms Plus...  
**Complete Heating and Ventilating Comfort Everywhere**  
**Lower Construction Costs, Lower Operating Costs**  
**NORMAN SCHOOLROOM SYSTEMS**

Here's another illustration of the way Norman gas-fired individual classroom packages permit construction economies and assure low cost operation. This new Boulder Hill Elementary School has 18 classrooms plus multi-purpose room, stage and music room, kitchen, administrative rooms and other areas.

By specifying Norman Schoolroom Heating and Ventilating Systems for classrooms, it was not necessary to add boiler rooms, pipe tunnels, connecting ducts or a chimney.

A Norman System in each room or area automatically blends fresh outdoor air with recirculated room air... automatically compensates for occupancy, solar heat gain and other variables... and automatically recirculates room air only during unoccupied periods. Air conditioning may be included or added later.

For facts and figures, write for comprehensive manuals on Norman Horizontal and Inn-A-Wal models.



Boulder Hill Elementary School, Oswego, Ill. Superintendent of Schools: T. Loyd Traugher Architects and Engineers: Kruegel, Healy & Moore, Joliet, Ill. Heating & Ventilating: Feltes Heating & Air Conditioning, Aurora, Ill.

**Norman® PRODUCTS CO.** 1152 Chesapeake Ave., Columbus 12, Ohio



# Building Components

## Application and Specification of Materials and Equipment

### A Lexicon for PLASTICS IN BUILDING

#### Part I

*Even though plastics have come into architecture in a big way, there still is considerable uncertainty about nomenclature and the proper application of these synthetic materials to building components. This article gives definitions that architects and engineers need to know in working with plastics, and lists plastics typically employed—from surfacings all the way to plumbing*

by William Demarest  
Director, Plastics in Building  
Manufacturing Chemists'  
Association, Inc.

Although our laboratories are synthesizing more and more materials that do not occur in nature, this is not a random process and the plastics—so far, the greatest group devised by man—constitute a recognizable class of materials, analogous to the woods or the metals.

Chemists describe this group as organic "polymers" and can explain why similarities in the structure of plastics' molecules give rise to many similarities in engineering properties. Fairly safe generalizations can be made about the physical characteristics of these materials, just as with metals and other materials. Further, it is useful to recognize the basic division among plastics, which is reflected in their engineering properties. Not unlike the distinctions between "non-ferrous" and "ferrous," or "hardwoods" and "softwoods," the two major divisions into one of which all the plastics must fall are:

*The Thermoplastics*, which become soft when exposed to sufficient heat and harden when cooled, no matter how often the process is repeated. Although some need more heat than others, softening with heat is their distinguishing characteristic, very much like the behavior of candle wax.

*The Thermosets*, which are set into permanent shape when heated during forming. Reheating will not soften them (any more than it would the white of an egg), and the only change that can be brought about by increasing heat is actual chemical decomposition—analogueous to the charring and burning of wood.

Ten characteristics of plastics in general have an important bearing on building applications. They are exhibited in varying degree, often

being especially marked in one or the other of the two basic subclasses—thermoplastic and thermosetting plastics.

1. *Excellent electrical-insulating properties*, in terms both of resistivity and dielectric strength. There are also other good electrical properties which are important in specific applications that are of more significance in electrical engineering than in building.

2. *Good corrosion resistance*. At least one plastic material can be found to resist practically any corrosive condition found in building. Many instances can be cited—in industrial piping, for example—where plastics have far out-performed costlier metals, such as copper or stainless steel, under corrosive conditions.

3. *Creep*. Some plastics, especially the thermosets, are essentially elastic within certain limits of stress: deformation in proportion to the load applied which disappears quickly when the load is released. Others, especially the thermoplastics, exhibit plastic behavior: they flow, or "creep," when stressed, depending not only on the load, but also on the rate at which it is applied and its duration, and increasing with increases in temperature. This characteristic is comparable to that of steel or other metals when stressed, perhaps at high temperatures, beyond the elastic limit. When the load is removed, the material may eventually recover part of the deformation, or all of it.

4. *Low tensile strength* is generally characteristic of unreinforced plastics, although in laminated or reinforced form, plastics can compare quite favorably with metals.

5. *Low modulus of elasticity* is also characteristic, but glass-fiber-

reinforced thermosetting plastics offer roughly the same range of stiffness as wood or concrete.

6. *Low maximum service temperatures*. In contrast with a number of structural building materials in common use, plastics in general are best used at temperatures below the wood-char point of 380-400 deg F. This is only an approximate statement, due to the varied conditions of actual use and to differing combinations of temperature-affected properties that may be relevant: tensile strength, creep, chemical stability, and the like.

7. *High thermal coefficient of expansion*. Plastics typically expand, per unit of temperature increase, several times as much as metals. Thermoplastics, as a group, have a higher coefficient than thermosets.

8. *Flammability*. In the sense that they can be destroyed by fire, plastics can be grouped with all other organic materials. However, a number of them—including certain thermoplastics—will extinguish themselves once the igniting flame has been removed.

9. *Low thermal conductivity*. Typical "k-value" for the plastics in common use is about 1.5, or slightly higher than wood. As low-density foams, plastics provide some of the most efficient thermal insulators available for building; a 2 lb per cu ft polystyrene foam, for example, might offer a "k" of 0.25.

10. *Light weight*, per unit volume. Unmodified with fillers, reinforcements, or other additives, the more common of these materials range from a specific gravity of just under 0.9 (polypropylene) to roughly 1.5 polyvinyl chloride, PVC. Strength-to-weight ratios thus compare favorably with those of other materials.



## Plastics in Building

Tensile strength of plastics is comparable to wood and concrete, but increases to the range of metal alloys when reinforced or laminated with other materials or when drawn into fine filaments. Although plastics are inherently low in stiffness, when reinforced they range higher even than wood and concrete. Forming into structural shapes also increases stiffness. Thermal conductivity is about as low as wood, making plastics excellent insulators. Although most plastics are damaged above about 200 deg F, many do not support their own combustion or burn with difficulty

Note: Charts are reproduced from "Physical and Engineering Properties of Plastics" by Albert G. H. Dietz, a paper delivered at the 1954 conference on plastics held by the Building Research Institute and published in the conference report "Plastics in Building."

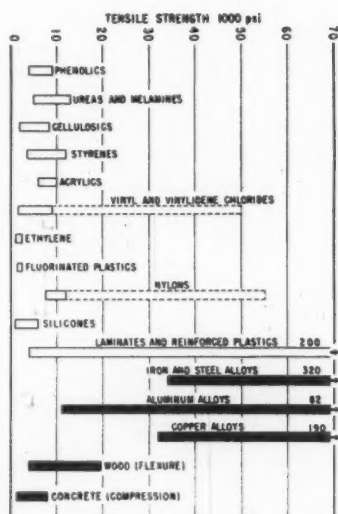


Fig. 1. Tensile Strength of Plastics and Other Materials at 1000 psi

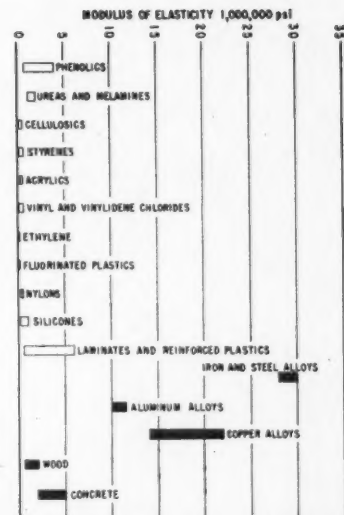


Fig. 2. Modulus of Elasticity of Plastics and Various Other Materials at 1,000,000 psi

### TERMINOLOGY

A certain amount of chemical-industry terminology cannot be avoided in discussing plastics. A few of the following terms are included because their meanings in this context are somewhat more precise than in common parlance.

#### COLD FLOW:

Creep occurring at room temperature.

#### COPOLYMER:

A substance consisting of long-chain molecules formed from two or more different monomers.

#### CREEP:

The change in dimension of a plastic under load over a period of time. Does not include the initial instantaneous elastic deformation.

#### CROSS-LINKING:

The chemical union of polymer molecules to form a three-dimensional network. Cross-linked polymers are usually infusible thermosets.

#### CURE:

Changing physical properties of a material by chemical reaction—usually to a harder or more permanent form.

#### DEFLECTION TEMPERATURE:

Degrees Fahrenheit at which a plastic material under fixed stress distorts as temperature increases, according to standard ASTM test procedure. (D 648-56).

### DEGRADATION:

Molecular change to the polymer, usually from exposure to light, fire, or heat, becoming apparent as charring, discoloration, clouding of transparent plastics, embrittlement, or other loss of original properties.

### DISPERSION:

A liquid with finely-divided insoluble particles scattered uniformly throughout. Called a "colloid" if particles are fine enough. "Dispersion" and "suspension" contrast with a "solution."

### ELASTOMER:

A material which at room temperature can be stretched repeatedly to at least twice its original length and, upon release of the stress, will return instantly and with force to its approximate original length.

### EXOTHERMIC:

Adjective indicating a chemical reaction that gives off heat.

### FILM:

Sheeting of nominal thickness not greater than 10 mils.

### FLASH:

Extra plastic attached to a molding along the parting line. It must be removed before the piece can be considered finished.

### HIGH-PRESSURE LAMINATES:

Laminates molded and cured at pressures not lower than 1000 psi, (commonly 1200-2000 psi).

### INHIBITOR:

A substance that slows down chemical reaction—often used to prolong "shelf" or storage life.

### LATEX:

A suspension in water of fine particles of rubber, (which today includes synthetic rubber).

### LINEAR:

Adjective to describe a long-chain molecule with a minimum of side-chains or branches.

### LOW-PRESSURE LAMINATES:

In general, laminates molded and cured in the range of pressures from 400 psi down to and including pressures obtained by the mere contact of the plies.

### MONOFILAMENT:

A continuous thread made up of only one filament.

### MONOMER:

A substance constituted of a simple molecule, of relatively low molecular weight, that is capable of reacting with like molecules to form long-molecular-chain "polymers" (or, with both like and unlike molecules, to form "copolymers").

### ORGANIC:

Adjective to distinguish those compounds, like plant and animal matter, which contain the very prevalent carbon atom. "Inorganic" compounds are those that do not contain carbon.



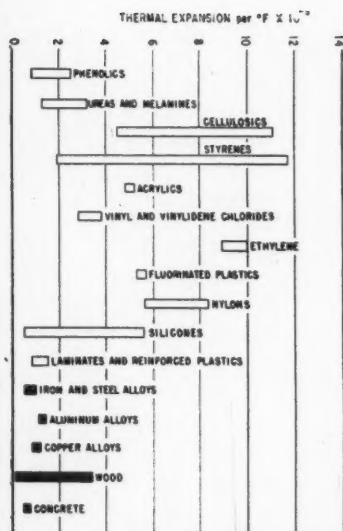


Fig. 3. Thermal Expansion of Plastics and Various Other Materials

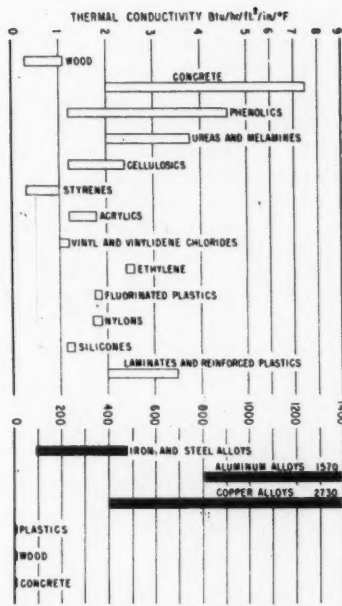


Fig. 4. Thermal Conductivity of Plastics and Other Materials

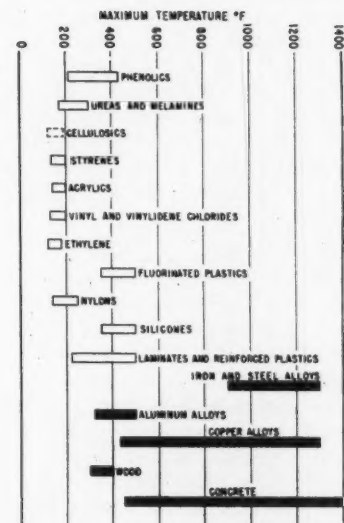


Fig. 5. Approximate Temperature Limits for Plastics Compared with Other Materials

#### PLASTICIZER:

Materials added to a plastic to improve flexibility or to facilitate compounding.

#### POLYMER:

A substance consisting of long-chain molecules formed by the union of many small molecules that are alike. (See "monomer.")

#### POLYMERIZATION:

The process by which polymers and copolymers are formed.

#### POSTFORMING:

Bending phenolic laminates or certain other thermosetting sheet materials into simple (substantially permanent) shapes by heat and pressure after initial cure.

#### RESIN (SYNTHETIC):

Polymeric synthetic products having some of the characteristics of natural resins. Some serve as base ingredients of plastics; others are important ingredients of finishes, adhesives, etc.

#### RESORCINOL:

Generic noun for a group of synthetic polymers, much like the phenolics, that are chiefly used as heat and water resistant adhesive.

#### ROVING:

A form of fibrous glass in which spun strands are woven into a tubular rope.

#### SUSPENSION:

A liquid with small, solid particles

dispersed more or less uniformly throughout.

#### THERMOPLASTIC:

Term identifying that category of plastics which soften whenever heated sufficiently.

#### THERMOSET AND THERMOSETTING:

Terms identifying the other category of plastics, which undergo a chemical change and harden permanently when heated (in contradistinction to the thermoplastics).

#### THIXOTROPIC:

Said of materials that are gel-like at rest, but fluid when agitated (desirable in paints).

#### VACUUM FORMING:

Method of sheet forming in which the plastic sheet is clamped in a stationary frame, heated and drawn down by a vacuum into a mold.

#### VINYL:

Alone, this word has a precise meaning to chemists. But as used in building, it is a vague term for certain polymers or copolymers. It is safe to assume that "vinyl" means, in connection with latex paints, "polyvinyl acetate" or—anywhere else in building "polyvinyl chloride" (PVC), or a preponderantly-PVC copolymer.

#### PRINCIPAL TYPES OF PLASTICS

##### Thermoplastics

#### ABS PLASTICS:

Compounds of acrylonitrile, butadiene, and styrene. Important characteristics are toughness, chemical resistance, and non-brittleness at low temperatures.

#### ACETATE:

See "Cellulosics."

#### ACRYLICS:

Popularly known trade names are "Lucite" or "Plexiglas"; chemical name, "polymethyl methacrylate." These materials combine the transparency of glass with plastics' shatterproof quality. Their weathering performance has been better than other common plastics and is being constantly improved.

#### BUTYRATE:

See "Cellulosics."

#### CELLULOSES:

(Primarily cellulose acetate or butyrate.) Also transparent, "acetate" is well known as photographic safety-film. These plastics are amazingly tough—one common use is tool handles.

#### FLUOROCARBONS:

A group of extremely inert plastics. As resins, dispersions, oils, greases, and waxes, they have high thermal stability and excellent resistance to chemical attack.

#### METHYL

#### MECHACRYLATE:

See "acrylics."



## NYLON:

Molded-nylon products have qualities as spectacular as those of the longer known nylon fabrics. They are tough, have a low frictional coefficient, and they resist mechanical wear better than many metals. Nylon's high softening temperature is exemplified by its replacement of brass for mixing-valves in automatic washers.

## POLYCARBONATE:

A new polymer offering outstanding impact strength, dimensional stability under varying humidity or temperature, and heat resistance.

## POLYETHYLENE:

Waxy and chemically inert, flexible even at low temperatures, this material is one of the best known plastics. It is a water barrier and retards the passage of water vapor. The plain, colorless substance is short lived in sunlight, but carbon-black-pigmented polyethylene has a good weathering record. (A new, "linear" polyethylene with properties more desirable for certain applications, is now available.)

## POLYPROPYLENE:

A thermoplastic material composed of polymers of propylene. The lightest of all commercial plastics, its properties are roughly comparable with those of linear polyethylene.

## POLYSTYRENE:

Non-water-absorbent, it is found in colorful, but brittle, wall tiles. Copolymers of styrene with rubber can be very tough. Polystyrene is one of several plastics used in electric-lighting diffusers. In foamed form, it has become an important thermal insulation.

## PVC (POLYVINYL CHLORIDE):

The resin itself is rigid; plasticizers add flexibility to excellent resistance to wear and abuse.

## SARAN:

A cousin of PVC, chemically as well as in its properties. Unlike PVC, which must be "stabilized" against degradation under ultraviolet light, Saran performs well outdoors without special formulation.

## Thermosets

### ALKYDS:

These appear chiefly as molded electrical parts. They are also important constituents of certain paints.

\* as contrasted with liquid-applied paints and coatings.

## EPOXY:

Relatively new and still quite expensive, epoxy is already used in building because of its remarkable adhesive qualities and chemical resistance.

## MELAMINE AND UREA:

Hard, durable, and dimensionally stable, these quite similar plastics are resistant to chemicals, electrical potential, and heat. This last property makes lower-priced urea useful for incandescent-light diffusion. With a wider color range, melamine is well known to the public in the form of molded dishes and laminates, such as counter tops.

## PHENOLIC:

Familiar for years as Bakelite in the old, black telephone handsets, it is strong, durable, and both electrical- and heat-resistant. This low-cost "workhorse" plastic is limited to dark colors.

## POLYESTER:

Appears in film form under trade names such as "Mylar" and "Videne." It has been known longer as the plastic most commonly used in large glass-fiber-reinforced translucent panels that are strong, rigid, and impact-resistant. Polyesters' resistance to abrasion can be poor, as can its ultraviolet-light resistance, but properties vary widely with differences in formulation.

## SILICONES:

Being semi-inorganic substances, silicones might not be classified strictly as "plastics." In building, they are applied to masonry to improve its water-repellance and weatherability.

## URETHANE, properly called polyurethane:

Newly developed thermosetting polymer, appearing as flexible and rigid foams and coatings, also as adhesives and as elastomers.

## APPLICATIONS

### Solid Finish Surfacing\*

#### FLOOR COVERING

*Plastics typically employed*—PVC; vinyl-asbestos.

*Preferred because*—Permanent color; chemical and wear resistance.

*Remarks*—Share some problems of all resilient floorings, such as shrinkage, selection of proper adhesives and indentation.

#### COUNTERTOPS

*Plastics typically employed*—Mela-

mine on phenolic laminate; PVC or polyester laminated to hardboard or other substrate.

*Preferred because*—Ease of cleaning, no maintenance, withstand abuse and variety of colorful designs.

*Remarks*—Best heat resistance offered by decorative melamine-surfaced laminates; some are cigarette proof. But the others are more adaptable to complex shapes.

#### INTERIOR WALL SURFACING

*Plastics typically employed*—Polystyrene tile or boards; PVC, either in sheets (often fabric-backed) or impregnated in fabric; polyester, often factory- or field-applied to masonry.

*Preferred because*—Variety of colorful designs; easy maintenance; withstand abuse; do-it-yourself application of wall tiles.

*Remarks*—PVC provides top-quality wall coverings for such hard-use installations as hotels and institutions. Field-applied polyesters' uses include sanitary locations such as dairies and bakeries.

#### EXTERIOR WALL SURFACING

*Plastics typically employed*—Polyester (reinforced with glass fibers); acrylic, (often similarly reinforced); PVC.

*Preferred because*—Integral color; large-area units possible, with fewer joints than brick, shingles, etc.; lightweight; relatively easy to clean.

*Remarks*—None of these building materials have been in use long enough to establish weatherability comparisons; acrylics have stood up thus far for more than 20 years. Architectural possibilities offered by added feature of translucency only beginning to be explored. These are organic materials and will burn.

#### GLAZING

*Plastics typically employed*—(see also translucent exterior wall surfacing, above). Acrylic; polyester; PVC; polyethylene.

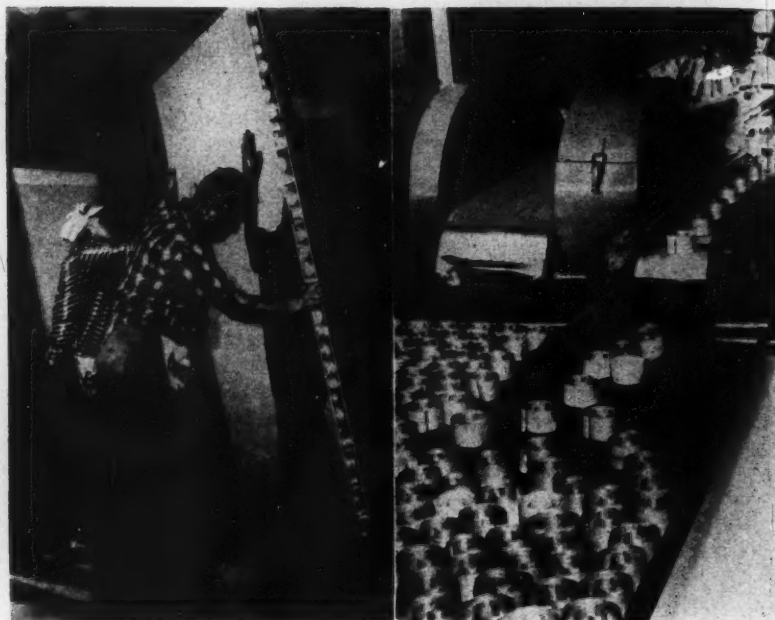
*Preferred because*—Shatterproof; conducts only  $\frac{1}{4}$  as fast as glass; because readily formed, offers self-flashing shapes such as single-unit skylights.

*Remarks*—Optically, not as good as the best glass, but decorative possibilities unlimited. Polyethylene uses temporary only, as during construction.

(To be concluded in November)



## WOOD SHAVINGS, GYPSUM MAKE UP PREFAB PANELS



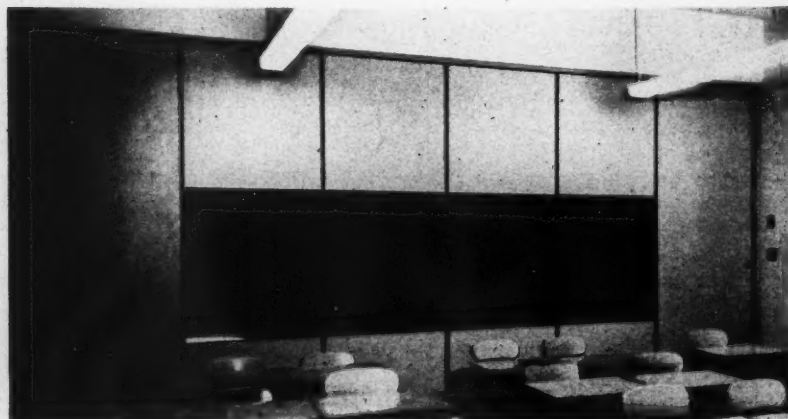
The National Gypsum Co. has developed a new prefabricated panel which can be assembled to form non-load-bearing partitions. The panels are made of two pieces of gypsum wall-board laminated with a center core of hardwood spirals to form a panel 2 $\frac{3}{8}$  in. thick. The hardwood spirals resemble familiar wood shavings, but are precision cut to a uniform size. Each panel has a wood strip embedded in one end to aid application on the job site. Panels can be erected individually, or by pre-assembling entire wall sections. They can be used in place of conventional stud construction for all interior non load-bearing walls, except those incorporating water and sewer service lines. Short electrical runs can be pushed between the spirals, or they can be punctured to permit longer runs of cable to be fed through them. *National Gypsum Co., Buffalo 2, N.Y.*

## FOLDING PARTITION PROVIDES SOUND BARRIER

A new folding partition which provides a high degree of sound control has been introduced by the E. F. Hauserman Co. Sound tests have shown the partition, called Operable Wall, to have an over-all average of sound reduction comparable to many fixed partitions. The wall is composed of steel panels which enclose a core of packed rock wool. Continuous sealing at the perimeter and neoprene gaskets at the panel joints counteract sound leakage. The wall is manually

operated and runs on an overhead track. There is also a floor guide for increased stability. A thirty foot Operable Wall can be stacked in an area less than 2 ft deep. The panels have a baked enamel finish, and chalk and tack boards can be permanently applied. Individual panels are removable, as each is hung separately, and an end panel is available as a door. *The E. F. Hauserman Co., 5711 Grant Ave., Cleveland 5, Ohio.*

*more products on page 198*





#### Blueprint for Better Schools

Features wood school designs developed by Cooper and Auerbach, A.I.A., with isometric renderings, site plans, sketches and detail drawings. A variety of exterior siding, interior panelings, and door and window designs are also shown, as are flat, sloping and curved roofs supported by beam-and-purlin and beam-and-rafter systems, laminated wood bents, laminated beams, bow-string trusses, and V-arches. *Wood Information Center, National Lumber Manufacturers Assn., 1319 18th St., N.W., Washington 6, D. C.\**

#### Insulation Product Information

(A.I.A. 37-D) Describes available forms or types of thermal insulations for all types of commercial and industrial requirements; discusses advantages to users; and gives detailed specifications, including compliance with government specifications and ASTM standards. Catalog IN-244A, 64 pp. *Johns-Manville Sales Corp., 20 East 40th St., New York 16, N. Y.\**

#### Store Equipment for Store Planning

(A.I.A. 35-H-5) Describes and illustrates complete line of store fixtures and furnishings. Catalog E-11, 64 pp. *Frederic Weinberg Co., 145 W. Columbia Avenue, Philadelphia 22, Pa.*

#### TECO Catalog

Describes and illustrates the firm's line of timber connectors, framing devices and installation tools, and includes recommended working loads of *Teco-U-Grip* joist and beam hangers, *Trip-L-Grip* and *Du-Al-Clip* framing anchors, and installation data on *Fas-Lok* bridging. 8 pp. *Timber Engineering Company, 1319 18th St., N. W., Washington 6, D. C.*

#### Kentile Floors

A new *Workbook for Architects and Builders* (A.I.A. 23-G) covers recommended uses, suitable walls and underfloors, approximate costs, light reflectance, radiant heating, adhesives, static loads, and relative quietness; and also includes installation and maintenance instructions for various tile and wood floors, flooring suggestions for special circumstances, and specification data. 48 pp. *Kentile, Inc., 58 Second Ave., Brooklyn 15, N. Y.\**

#### Electric Traverse Rod

A 16-page catalog describes the Kenney electric traverse rod as "an entirely new concept in automatic drapery control." The rod includes track assembly, power supply and electrical control system. Controls operate from single or multiple stations. *Kenney Mfg. Co., 609 Wellington Ave., Cranston 10, R. I.*

#### Patterned Aluminum Sheet

Samples of 41 different types of patterned aluminum sheet are shown in *Designed Surfaces*, from Alcoa. It lists the width, length, alloys and tempers in which each pattern is normally available. The patterned sheets are flexible and allow interchange and combination of patterns and finishes, pre-finished coatings, color and original designs. *Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.\**

#### Steel Beams

(A.I.A. 13-G) Details and specifications of Diamond-Span-R open web steel beams are given in a spring-bound catalog. *Elizabeth Iron Works, Inc., 540 Green Lane, Union, N. J.*

#### Concrete Construction Devices

Accessories used in concrete construction are discussed in a handbook made up of 12 loose-leaf bulletins. Form-tys, supports, inserts and anchors are among the more than 400 products included. Individual bulletins or the complete handbook are available from *Richmond Screw Anchor Co., Inc., 816-838 Liberty Ave., Brooklyn 8, N.Y.\**

#### Emergency Lighting

A 24-page catalog describes emergency lighting systems that can be used in all types of non-residential buildings. Should normal lighting fail, emergency lighting comes on instantly and automatically. The systems also have built-in "supervisory" circuits which report any disarrangement—even a burned-out light in an exit sign. Power is provided by non-acid nickel-cadmium batteries which last 25 years or more. *The Standard Electric Time Co., 89 Logan St., Springfield, Mass.*

\*Additional product information in Sweet's Architectural File

more literature on page 254



#### Lamps for Industry

Looking for the exact lighting for your particular needs? This 16-page booklet includes candle power curves showing light distribution patterns of 116 types of industrial lamps. The hard glass incandescent and mercury reflector lamps are of all kinds, for both indoor and outdoor lighting, from 50 to 10,000 watts. *Radiant Lamp Corp., 300 Jelliff Ave., Newark, N.J.*





## THAT 75% OF SCHOOL LIGHTING COSTS CAN BE SAVED

LIGHT SOURCE	SKYLIGHTS ONLY	INCANDESCENT ONLY	FLUORESCENT ONLY	SKYLIGHTS & INCANDESCENT	SKYLIGHTS & FLUORESCENT
Average Lighting Level	35 FC	29 FC	31 FC	33 FC	31 FC
First Cost of Lighting Installation, Less Lamps	\$258.00	\$224.00	\$401.00	\$407.00	\$477.00
Total Annual Lighting Cost	\$19.42	\$204.55	\$75.96	\$63.23	\$43.87
Annual Cost Per Footcandle	0.55	7.05	2.45	1.92	1.42

CLASSROOM: 30' x 24' x 10', 30-FOOT CANDLE MINIMUM

Through Naturalite correlated lighting — *Naturalite skylights plus artificial lighting* — you can save 75% of school lighting cost. The accompanying chart, based on a typical school classroom, outlines the economic advantages of daylighting. Combine this with the fact that Naturalite skylights permit less heat input per foot candle of light, than artificial light, without sacrificing desired lighting levels or environmental control.

Take advantage of Naturalite's correlated lighting system for quality, control, and economy. Write now for further information and engineered skylight data for your specific project.



# NATURALITE, INC.

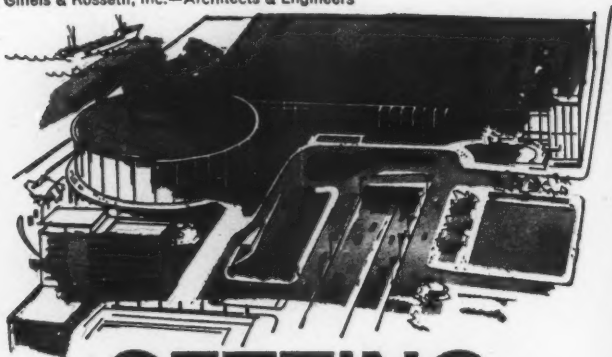
PLASTIC DOME SKYLIGHTS/LIGHT CONTROL ACCESSORIES

5115 EAST GRAND AVENUE • DALLAS 23, TEXAS • Taylor 1-2377





Giffels & Rossetti, Inc.—Architects & Engineers



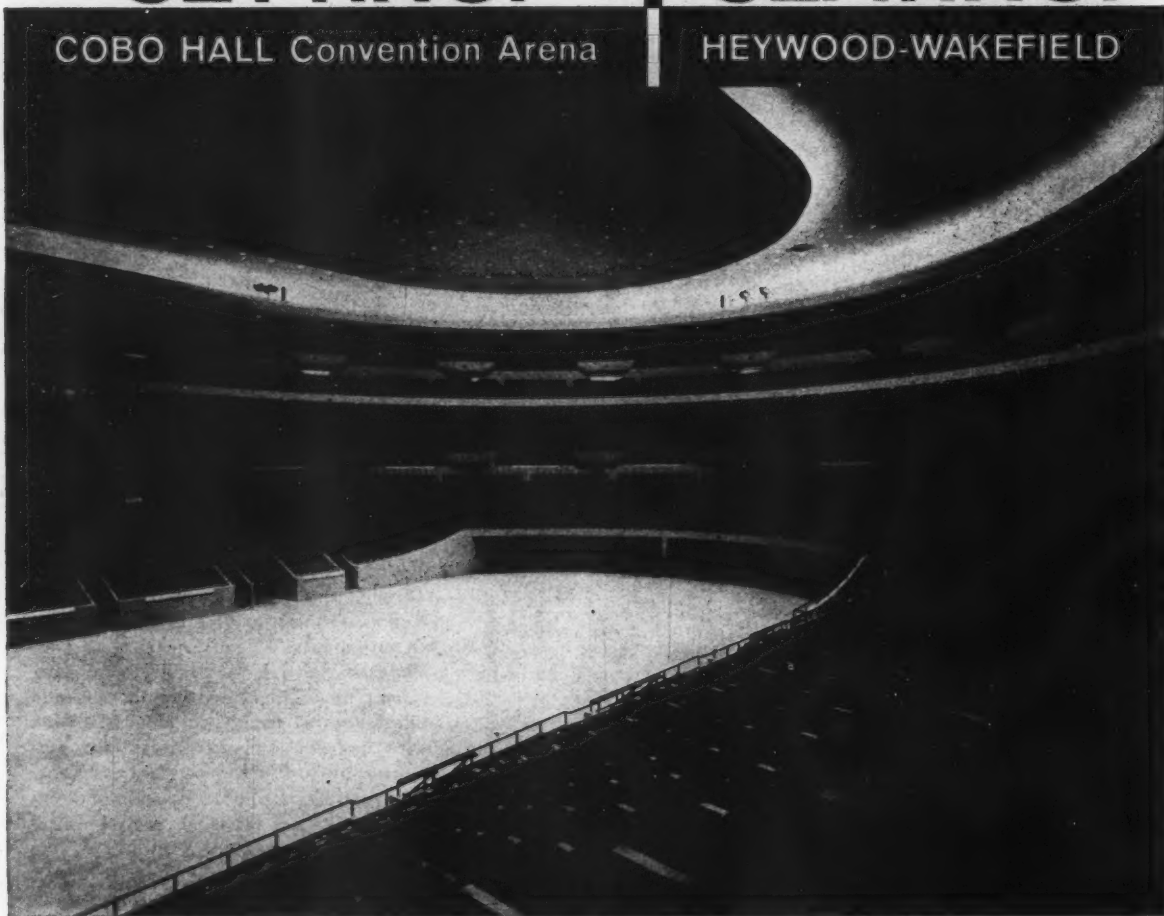
## SETTING:

COBO HALL Convention Arena



## SEATING:

HEYWOOD-WAKEFIELD



Detroit's trend-setting new civic center, Cobo Hall, is contemporary and functional, right down to the seating—by Heywood-Wakefield—in the Convention Arena. Here, more than 9500 people will relax in the luxury of "Encore" chairs... enjoy the comfort of the generously-padded backs and coil-spring seat cushions by Heywood-Wakefield, and the smooth, quiet way these seats rise out of the way when not in use.

The designers of this new civic center were so impressed by the beauty and utility of

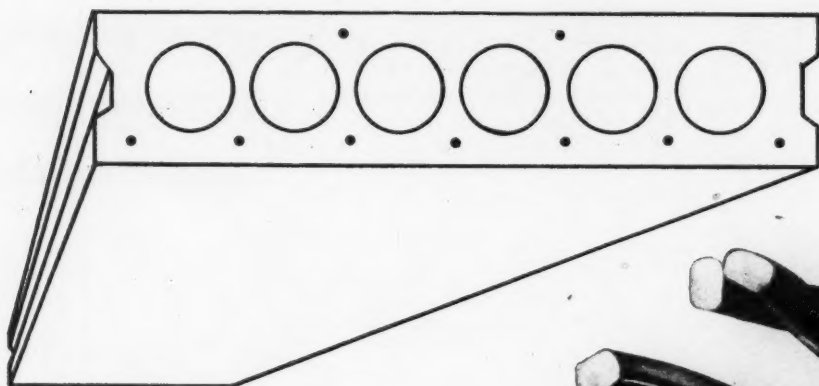
these chairs that they chose almost 3,500 additional chairs by Heywood-Wakefield for the Henry and Edsel Ford Memorial Auditorium and the City-County Building—companion facilities to Cobo Hall.

Once you relax in an "Encore" chair... you, too, will be impressed. You'll find this and other Heywood-Wakefield seating in many of the nation's new buildings—possibly in one or more near you. A portfolio describing the complete Heywood-Wakefield line is ready to mail to you at your request.



Menominee, Michigan





## Prestressed Concrete Industry Continues To Add To Design and Construction Advantages

Few, if any, of its segments have contributed so greatly to the construction industry in such a short time as has prestressed concrete.

Its growth has been phenomenal and healthy because it is based upon an advanced engineering concept of attaining equal or greater structural strength with less concrete and less steel.

After rapid technological development of superior steel, concrete and design, theory became theorem with an impact to be reckoned with. Now, each year, more and more architects and engineers are using prestressed concrete in their designing. A wide range of architectural and structural shapes are produced in plants across the nation.

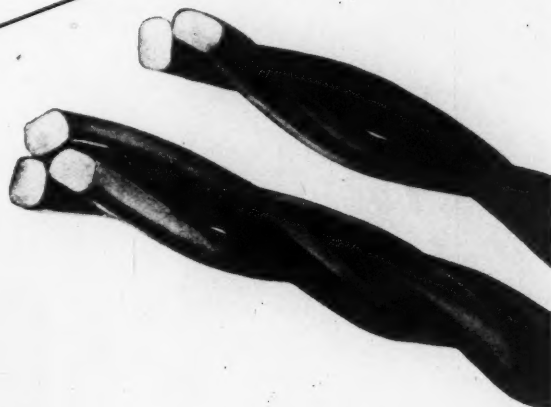
Technological development continues to enhance the many basic and collateral advantages of prestressed concrete such as:

- Greater—more flexible strength for longer spans, fewer columns.
- Thinner sections, lower depth to span ratios.
- Lower wall heights, increased usable cubage.
- Balanced stresses and strains and controlled deflection.
- Closer quality checks in controlled manufacture.
- Ready availability, speedier erection.
- Lower maintenance and insurance.

### Strength Factors of Prestressed Concrete Increased By Research Laboratory

In combining, or balancing, the compressive strength of concrete with the tensile strength of stress relieved round wire strand, a loss of bond occurs. The designing engineer must compensate for this with more strand at less tension.

Prestressed wire and strand has been a major project in Union Wire Rope laboratories, even before the beginning of the industry in America. Now, loss of bond through creeping and slippage has, for the first time, been largely overcome with Union's Tuf-Lock strand.



### New Union Tuf-Lock\* Strand Locks Itself In Concrete—Increases Bond Strength Up To 100%

Note the shape of the wires. Not round—not flat—but a combination that provides angular grooves and rounded bonding areas. The tendency to slip when cast in concrete is restricted. A locking action takes place as the strand, in seeking release from tension, tends to orient itself. A gripping effect is set up in the concrete locking the strand all along the axial path of the grooves.

The superior ability of Tuf-Lock strand to pass the tension stresses to the concrete has been proved in tests. 100% strand strength is developed by Tuf-Lock in one-half the length required by round wire strand.

### Still Readily Available UNION's ORIGINAL Tufwire



Tufwire for post-tensioning—Tufwire Strand—widely used since the beginning of prestressing in America will continue to be manufactured in unlimited quantities. It is available in coils, wooden reels and, the New Tuf-Pak.

**FREE Brochure** provides information on the physical properties of all Union prestressing products, including the increased bonding qualities of new Tuf-Lock Strand. Also gives methods of shipment including the new Tuf-Pak which makes possible shipment of longer lengths. Write Union Wire Rope, Armco Steel Corp., 2312 Manchester Ave., Kansas City 26, Mo.

\* Pat. Applied for



**Union Wire Rope**



## Product Reports

continued from page 193

### Solid State Lighted Sidewalk

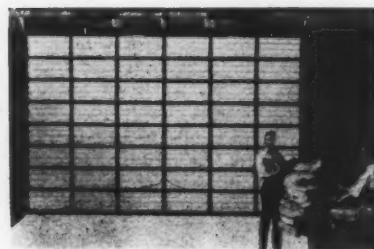
A solid state, lighted sidewalk has been installed at Sylvania Electric Products Inc. Unlike lighted side-



walks which require conventional light sources under a transparent or opaque surface, the Sylvania product is composed of solid pieces of steel embedded in the ground. The Panel-*escent* lamp used produces light over the entire surface by the principle of electroluminescence, in which light is created by the excitation of phosphors in an electrical field. The lamps used are set in aluminum trays and covered with plastic for weather-proofing. *Sylvania Electric Products Inc., 730 Third Avenue, New York 13, N.Y.*

### Translucent Industrial Door

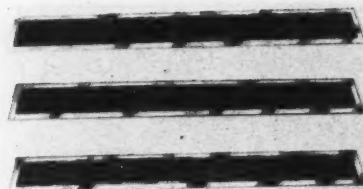
A new kind of strong, heavy-duty door, the *Filuma 2800 Series*, is translucent. It weighs about one third as much as comparable size wood or metal doors and comes in a choice of five colors in sizes up to 24



by 16 ft. The *Filuma* is an overhead door operated by adjustable torsion springs, with sections of reinforced fiberglass tightly encased in extruded aluminum frames. The door never needs painting or glazing and is cleaned by hosing. *Frantz Manufacturing Co., Sterling, Ill.*

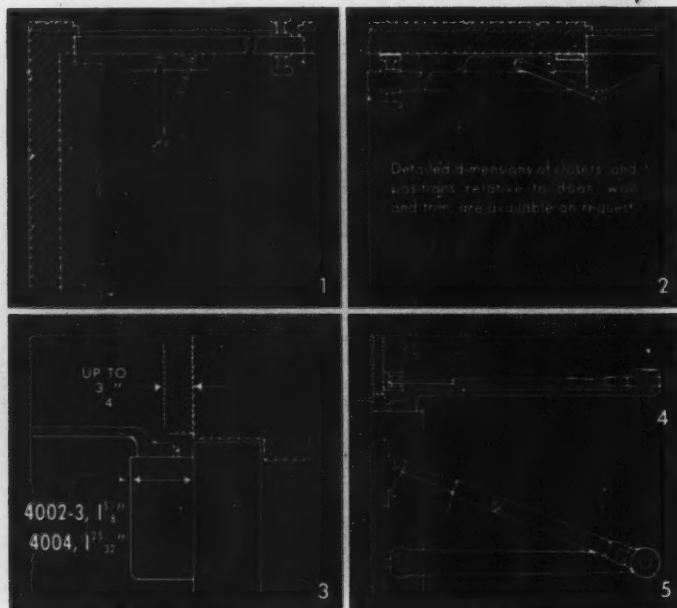
### Decorative Linear Diffusers

A new line of extruded aluminum linear air diffusers called the *Titus Staccato Line* introduces a copyrighted design in which short-spaced dashes along each louver stand out in relief against a dark background. The faces of the raised sections are brushed satin aluminum finish, a contrast to the anodized black finish of the rest of the louver. Diffusers can be furnished with a variety of extruded aluminum borders, in many



standard widths, and in any length for continuous appearance. *Titus Mfg. Corp., Waterloo, Iowa.*

more products on page 214



### APPLICATION DETAILS

for the SMOOTHEE® Door Closer Shown on Opposite Page

As Demonstrated in Drawings Above:

1. The LCN "Smoother" takes less space than most doorknobs between door and wall.
2. Degree of door opening possible depends mostly on type of trim and size of butt used.
3. Arm of LCN "Smoother" is formed to avoid conflict with almost any conventional trim.
4. Joints in arm and shoe make it easy to vary the height of shoe as needed for beveled trim.
5. Power of closer is increased or decreased by simply reversing position of shoe.

Complete Catalog on Request—No Obligation  
or See Sweet's 1961, Sec. 18e/Lc

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A DIVISION OF SCHLAGE LOCK COMPANY

Canada: LCN Closers of Canada, Ltd., P.O. Box 100, Port Credit, Ontario



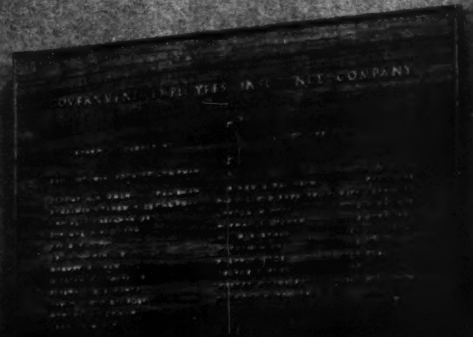
Vincent G. Kling, Architect

Modern Door Control by *LCN* "SMOOTHEE" Door Closers  
OFFICE OF GOVERNMENT EMPLOYEES INSURANCE COMPANY, WASHINGTON, D.C.

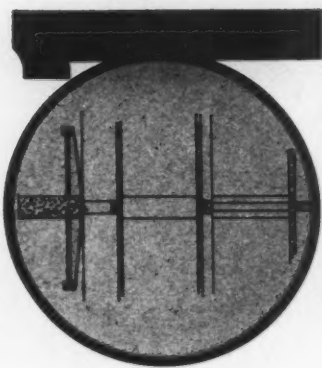
LCN CLOSERS, PRINCETON, ILLINOIS

A DIVISION OF SCHLAGE LOCK COMPANY

Application Details on Opposite Page

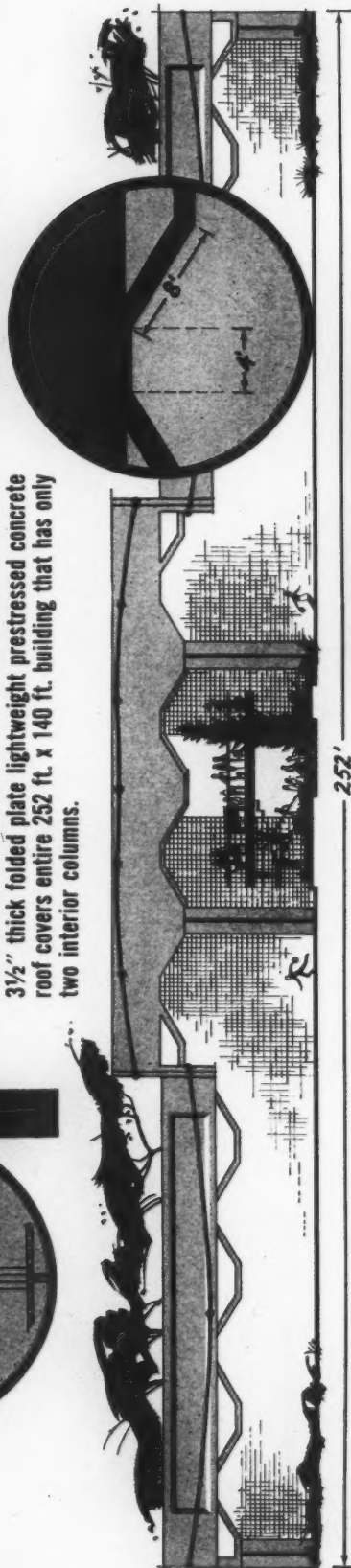






## POST-TENSIONED PRESTRESSED CONCRETE BEAM HOLDS ROOF OF 42,500 SQ. FT. BOWLING ALLEY!

3 1/2" thick folded plate lightweight prestressed concrete roof covers entire 252 ft. x 140 ft. building that has only two interior columns.



Three cast-in-place post-tensioned, prestressed concrete beams tied together with Prescon stressing tendons into one long unit make possible the unique structure of a 48 lane bowling alley that has no support columns in the lane area.

The Buccaneer Bowl in Corpus Christi, Texas was constructed at a cost of only \$8.40 per square foot using a concrete roof and support beam prestressed by the Prescon System of post-tensioning. This price includes a partial basement, a mezzanine restaurant, observation deck and a luxurious lobby—all air conditioned. The cost of the folded plate and the supporting beams was \$1.36 per square foot of area.

Forms built of 4' x 8' plywood sheets ready for pouring of folded plate roof. Stressing tendons provide strength for 70' span.



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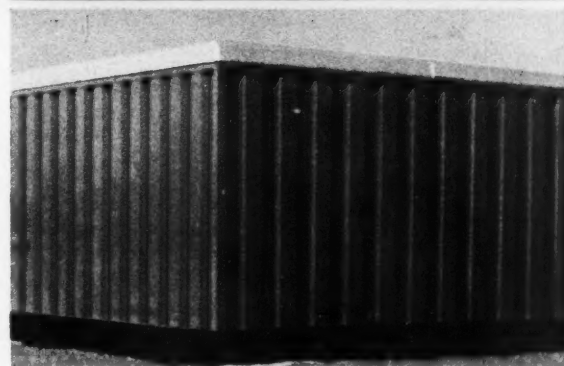
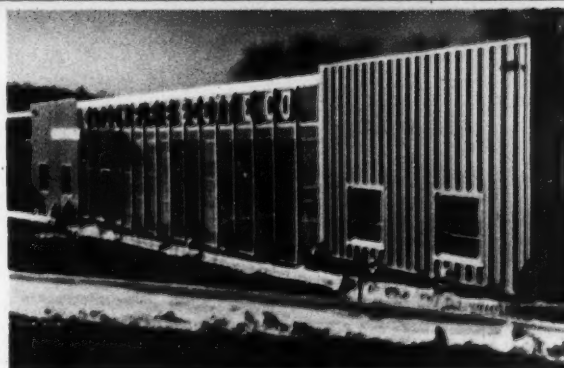
The shimmering beauty of Colorgard is protected by Peelcote, a strippable polyethylene skin, until erection is complete.

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(top) EGSCO insulated wall panels with Colorgard in tan and gold were erected on this recently completed Williamsport, Pa., plant of The M. W. Kellogg Company, where the Power Piping Division is located, including engineering, research and field erection and the manufacture of power piping systems. Engineer and architect is Lester B. Knight and Associates, Inc., Chicago.

(middle) This is the new, modern Pittsburgh office of Carson, Pirie, Scott & Co., nationally known wholesale distributors of floor coverings. The architecture is enhanced by EGSCO Shadowwall panels in Colorgard Gold. The architect is J. Kenneth Myers; the contracting engineers are Mellon-Stuart Co., both of Pittsburgh.

(lower) A close-up view of a curtainwall of EGSCO Contourwall in Colorgard Green. The panels form the colorful insulated metal wall for a penthouse on the roof of a modern factory-type building.





These steel wall panels coated with Geon are one of the components in the Ambridge Modular Schools manufactured by American Bridge Division of United States Steel Corporation. B.F. Goodrich Chemical Company supplies Geon vinyl which, after formulation, is mill applied by U. S. Steel.



## Steel walls coated with Geon teach schools a lesson in cost

It's a lesson that may save you money, too! Schools built with these wall panels need less costly foundations because of the lighter-weight walls. Teachers get more classroom space because panels are so slim. And maintenance is easier because they are coated with Geon vinyl.

The Geon coating is really rugged. It withstands toughest treatment, doesn't show the marring and scuffing of other materials. It's washable and comes in a variety of permanent, pleasing patterns and colors—not affected by sunlight or corrosive atmospheres.

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PLATE NO. 712

*Curtain Walls of Distinction in* **MOSAIC** *Ceramic Tile*

A.I.A. FILE  
No. 17-A



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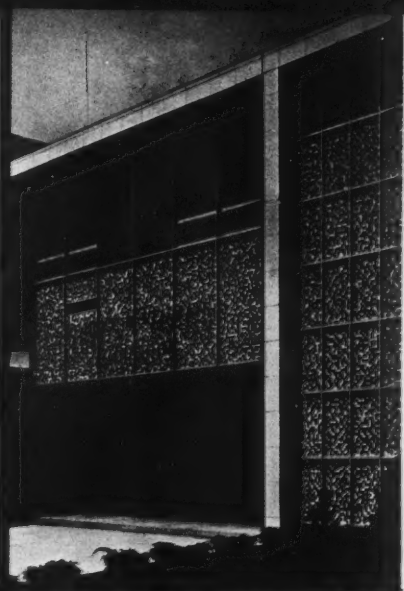


PLATE NO. 716-A (ALSO NO. 716-B)

Architect: Emil Schmidlin.  
Mosaic Medley Pattern No. 1778 in  
unglazed ceramic mosaics.



PLATE NO. 715

Architect: William E. Lehman.  
Panel Mfr.: Structural Panel Corporation.  
Mosaic Medley Pattern No. 3015 in  
unglazed ceramic mosaics.

PLATE NO. 716-B

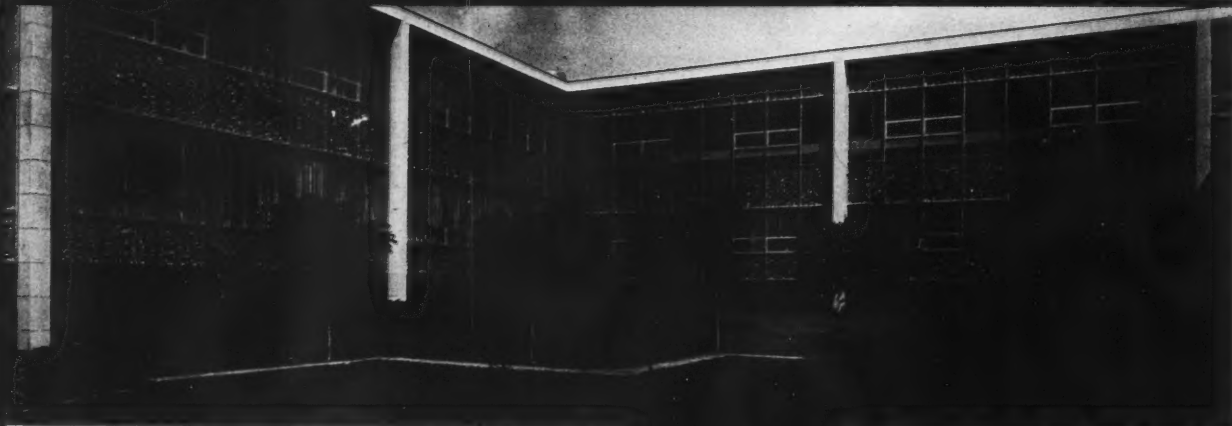


PLATE NO. 712

Architects: Paul Sternbach, Alton Rheume.  
Panel Mfr.: Structural Panel Corporation.  
Mosaic Pattern in glazed Faientex.



**MOSAIC**®



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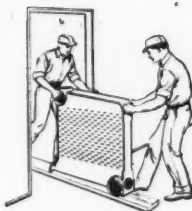
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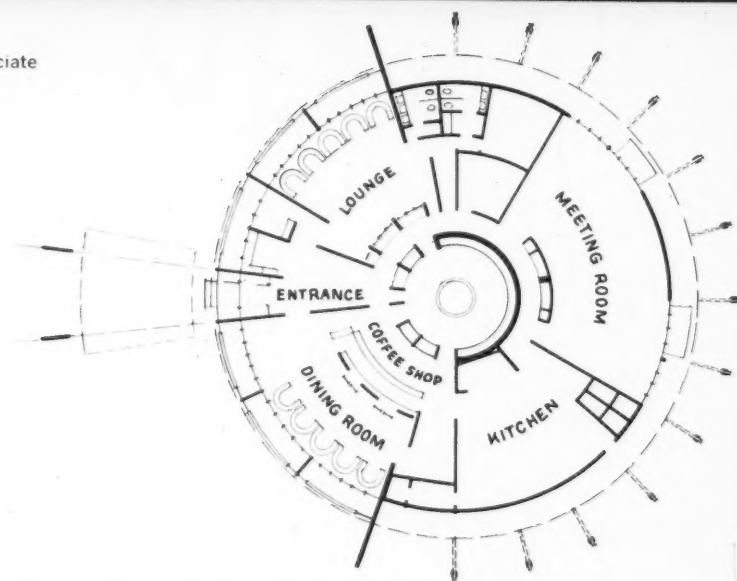
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Architect: David Jacobson, Jr., A.I.A.  
James Coppedge, Design Associate







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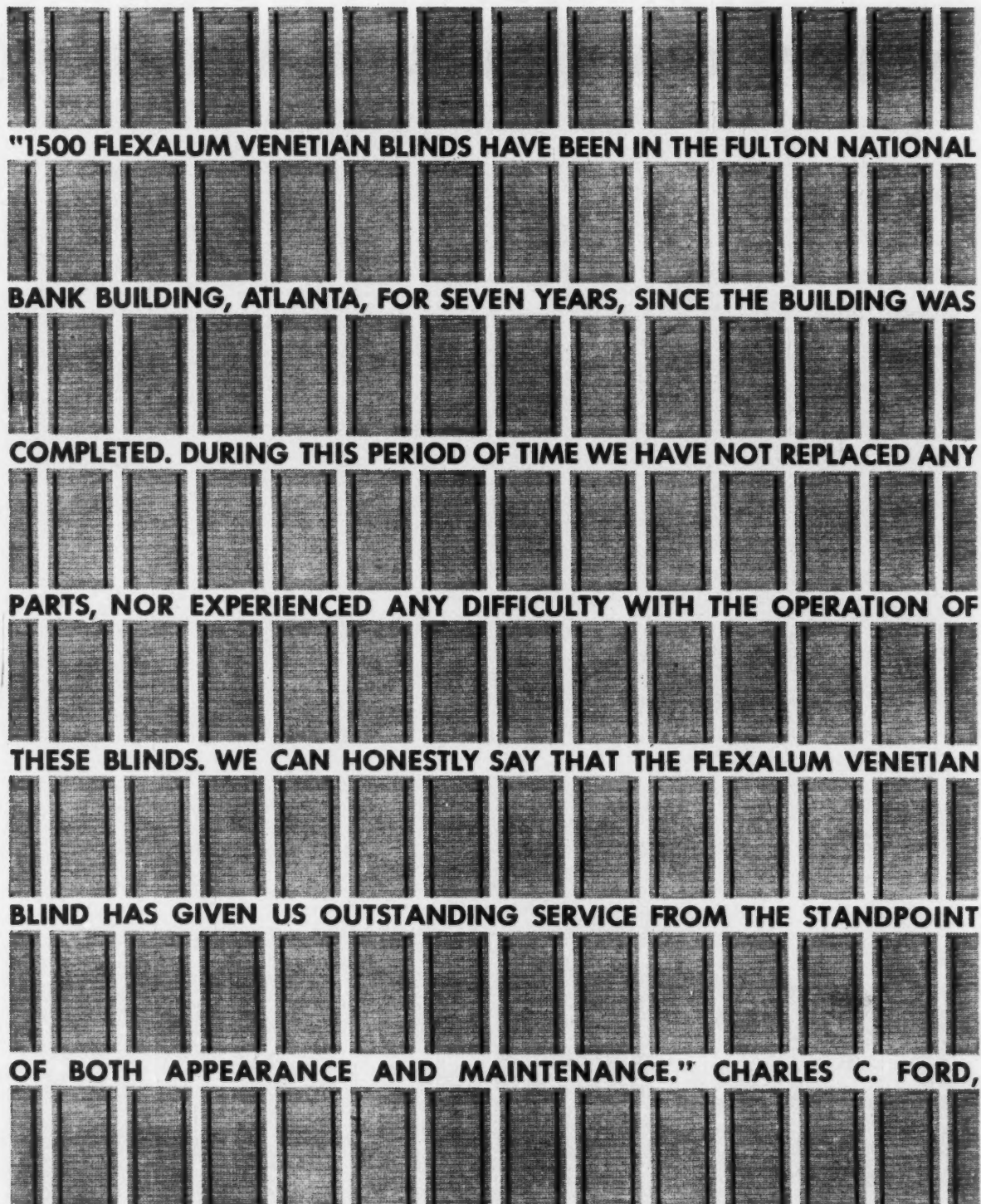
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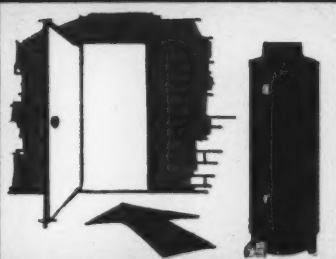
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## Product Reports

continued from page 198



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more products on page 220



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SOAKS UP  
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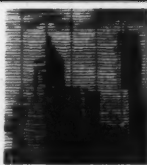
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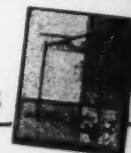


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Among



in INSTITUTIONS MAGAZINE'S  
1961 FOOD-SERVICE CONTEST...

# HOBART PRODUCTS ARE PERFORMANCE PREFERRED

by Users, Designers, Fabricators and Installers

Here's the percentage of Hobart machines in the 1961 award-winning kitchens using this type of equipment:



Food Cutters



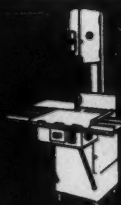
Dishwashers

62%



Mixers

89%



53%



Peelers

68%



Slicers



Meat  
Tenderizers

75%

136 Hobart machines in these seven categories...more than all other makes combined...demonstrate the better than 7-out-of-10 (71%) preference for Hobart versatility and performability. Hobart food, kitchen and dishwashing machines lend added prestige to every kitchen you plan. And the wide selection lets you choose the machine capacity exactly suited to each requirement. **The Hobart Manufacturing Company, Dept. HAR, Troy, Ohio.**

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# New PROTECTONE\* acoustical tile

A family of design-inspiring UL FIRE-RATED ceilings by CELOTEX

Widely varied in texture, pattern, and tonal effect...offering a choice of fire-rated acoustical ceiling assemblies...all with high sound absorption...these new PROTECTONE mineral fiber tile designs invite fresh new approaches.

SHOWN BELOW...new Natural-Floured PROTECTONE mineral fiber tile...for 2-HOUR UL fire-rated ceiling assembly (including concrete deck over bar joists). All the traditional beauty and authentic character that only natural travertine flourescing provides. Square edge, kerfed for concealed H & T suspension system. (Also for 1-hour UL fire-rated wood deck assembly.)

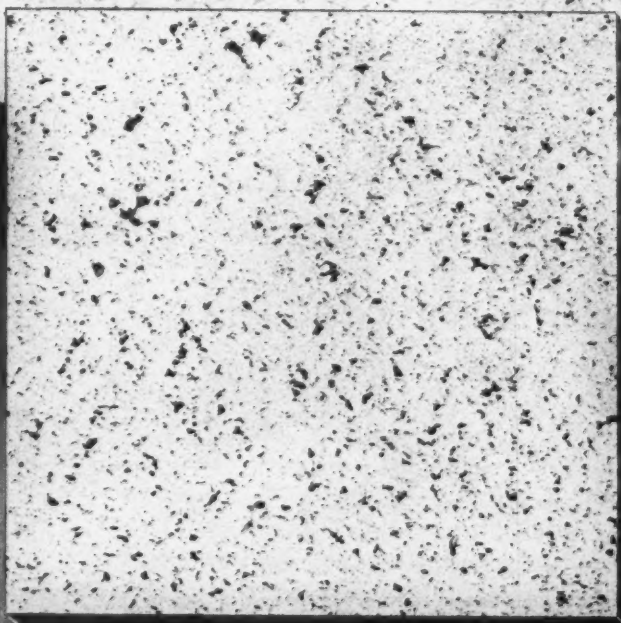
\*Trade Mark

*Acousti-CELOTEX*

SOUND CONDITIONING PRODUCTS

The Celotex Corporation, 120 S. La Salle St., Chicago 5, Ill.  
In Canada: Dominion Sound Equipments, Limited, Montreal, Que.

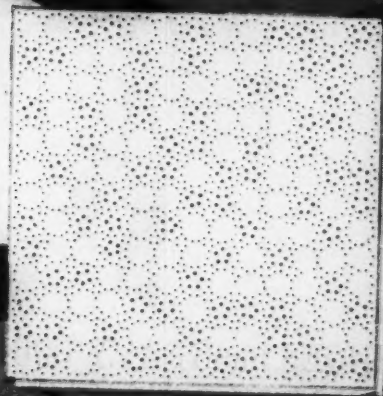
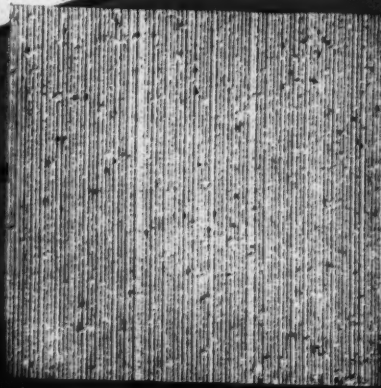
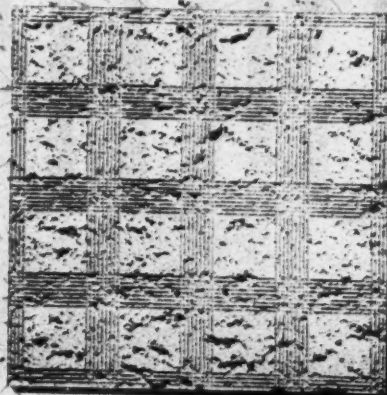
For samples, specifications, expert Selling Consultation Service,  
call your Acousti-Celotex distributor. He's in the Yellow Pages.



①

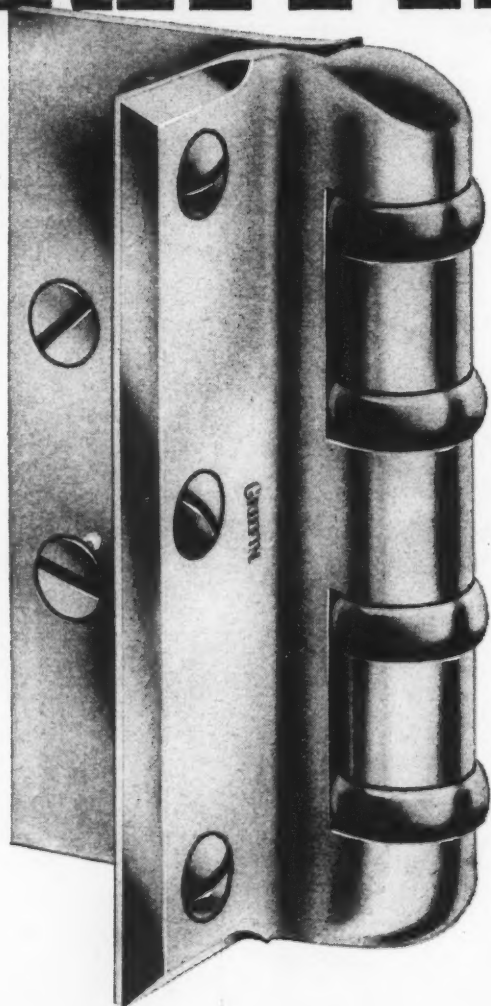


PROTECTONE® MINERAL FIBER UL FIRE-RATED PRODUCTS		
PRODUCTS	TIME-RATED	CEILING-FLOOR CONSTRUCTION
(1) Natural Flashed	1-hr.	Wood deck over wood joists
(2) Field		Concrete deck over steel bar joists
(3) Striated	2-hr.	Concrete deck over steel bar joists
All above are 12" x 12", square-edge, suited for concealed H & T suspension system		
(4) Tiffany	3-hr.	Concrete deck over steel bar joists
12" x 12", tongue and groove, suited for concealed Z-runner suspension system		



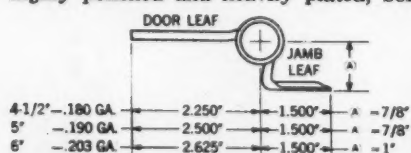


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with inner edges of leaves beveled. Also available in solid brass, bronze or stainless steel with stainless steel pins. All hinges conform to Federal specifications.

**GRIFFIN MANUFACTURING COMPANY • ERIE, PA.**

## Product Reports

*continued from page 214*

### Gray Transparent Mirror

*Parallel-O-Grey Mirropane* is a twin-ground gray transparent mirror designed for use where there is little difference in light intensity between the two areas involved. Like regular *Plate Mirropane*, which it will augment, it consists of a special chrome alloy, thin enough to be transparent, applied to twin ground glass by thermal evaporation. There are two differences: the glass in the new product is gray instead of clear, and it operates effectively as a mirror at lower light ratios: between four-to-one and two-to-one, instead of ten-to-one and five-to-one. It comes in a 1/4-in. thickness in any size up to 70 by 84 in. *Libbey-Owens-Ford Glass Co.*, 811 Madison Ave., Toledo 3, Ohio

### Acoustic Plank

By enlarging the traditional one-ft.-sq acoustical tile to a plank 16 in. wide and 10 or 12 ft long, *Kaiser Gypsum* has introduced an easy-to-



handle product which reduces application time. The *Fir-Tex* acoustical plank is 1/2 in. thick, same as standard tile. It has a washable, white finish and comes in either a pin-punched or fissured pattern. Because of the plank size, it can be used for walls as well as ceilings. *Kaiser Gypsum Co.*, *Kaiser Center, Oakland 12, Calif.*

### Fire-Resistant Wall Finish

In a series of tests, *Glazetite*, a spray-applied, low maintenance interior wall coating, rated "0" for flame-spread and "0" to "10" for smoke developed. A permanent covering of over 90 per cent inorganic composition, *Glazetite* is not affected by deterioration from oxidation and moisture. It is available in many colors, with a high gloss finish. *Desco International Association, Box 74, Buffalo, N.Y.*

*more products on page 226*





Holds 9,385 times its own weight. Permanently.

The fastener you see is a Ramset #3601. It weighs a scant 120 grains, red tip and all.

Because we're a conservative lot—and build in safety factor upon safety factor—we rate its designed holding power at 160 pounds, anchored in 3,500 psi concrete. Almost 10,000 times its own weight.

(In a series of controlled tests, our austempered Eye Pin averaged 2,000 pounds holding power in tension. Almost 120,000 times its weight. Hmmm. Move over Archimedes. With a big enough fastener, we could hold the world.)

Astonishingly enough, Ramset powder-driven fasteners do their job with

incredible speed. "In place" in less than 30 seconds. For setting an Eye Pin. For fastening steel to concrete or steel, wood to concrete or steel.

For a copy of our informative, 48 page "Fastener Handbook," with specifications and recommended applications, simply drop us a line on your company letterhead.

**Ramset**

WINCHESTER-WESTERN DIVISION **Clin**  
391-J Winchester Ave., New Haven 4, Conn.



# ON TOP



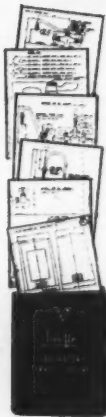
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## of laboratories



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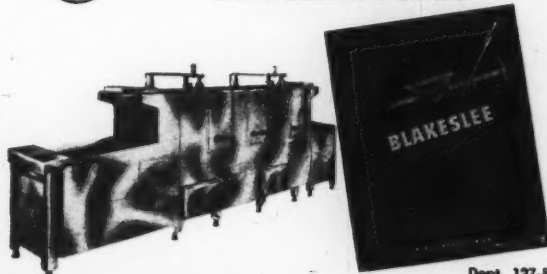
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**26b  
BL**



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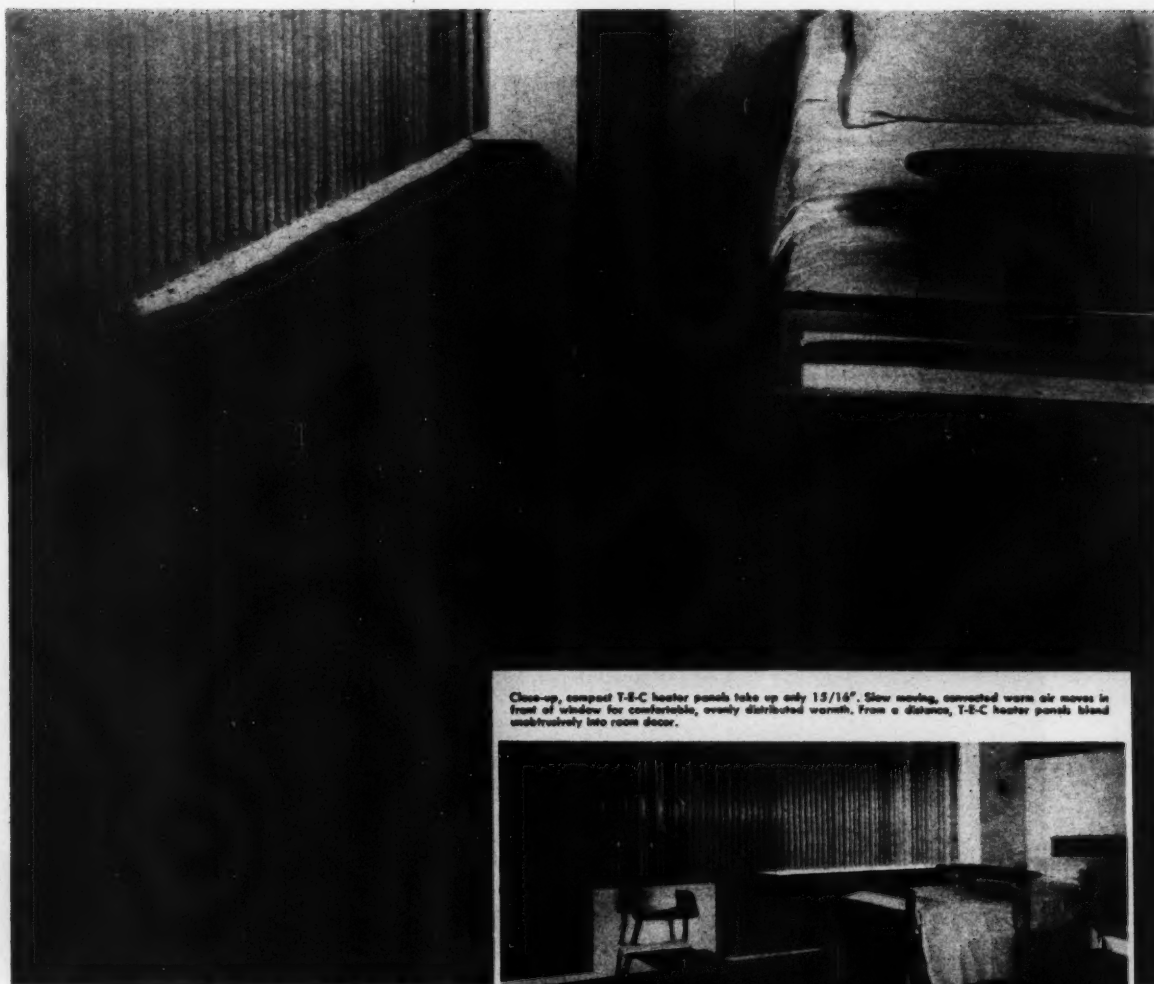
113-115 Pennsylvania Avenue, Paterson 3, New Jersey

ESTABLISHED 1858

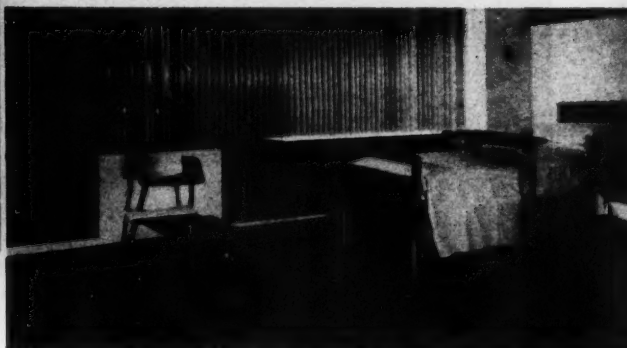
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**Instant Heat:** T-E-C heater panels, integrated with the main heating system, produce 65% radiant heat and 35% convective heat to surround rooms with a curtain of warm air and prevent fogging, frosting of windows. Ideal as a full time heating system.

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Overly crafts these metal envelopes to enclose any building contour, with a sensitive interpretation of the architect's design. Careful fidelity to design during fabrication is complemented by Overly erection supervision at the building site. When your plans include custom-crafted roof design, think of Overly—*The Architect's Craftsman*.



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**Overly**  
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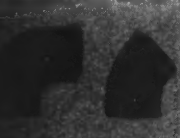


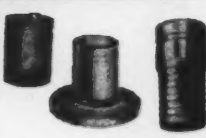
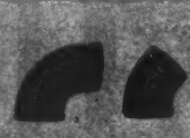





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<b>COMPANY OF AMERICA</b> P.O. Box 509 Elizabeth, N.J.		
		 Plug Valves

## Product Reports

continued from page 220

### Console Air Conditioning Unit

*Roommate II* combines two air conditioning firsts: patented *Humid-a-Guard* control system which can de-



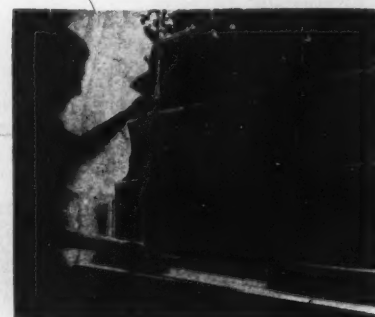
humidify at full capacity with or without reducing room temperatures; and an air volume stabilizer damper which will maintain the desired amount of outside air under all conditions no matter what the wind velocity. *John J. Nesbitt, Inc., State Road & Rhawn St., Philadelphia 36, Pa.*

### Photo-Copying Machine

Office production of glossy photocopies is possible with *Polymicro*, a photo-copying machine made in France. The prints can be used in making half-tones and are produced in 10 seconds each for less than 10 cents in paper costs. *Photorapid Corp., 142 Oregon St., El Segundo, Calif.*

### Aluminum Window—Colonial Style

The Series 410 *Alwintite* window is single-hung with separate panes and



white enamel finish in Colonial style. The sashes are pre-glazed and chipped or broken glass can be replaced from the inside. For cleaning, the lower sash lifts completely out of the frame. *General Bronze Corp., 711 Stewart Ave., Garden City, N.Y.*

more products on page 234





*18' overlapping Formica® wall panels, Steinberg's Groceteria, Montreal*

## To a designer who seldom answers advertising

Here are the facts quick and to the point.

The Formica Corporation has just announced:

1. Two new finishes especially for vertical surfacing.
2. New mahogany and white Tidewood patterns.
3. A new fire retardant grade available in the full color and pattern line.



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CORPORATION, DEPT. W-3, CINCINNATI 32, OHIO

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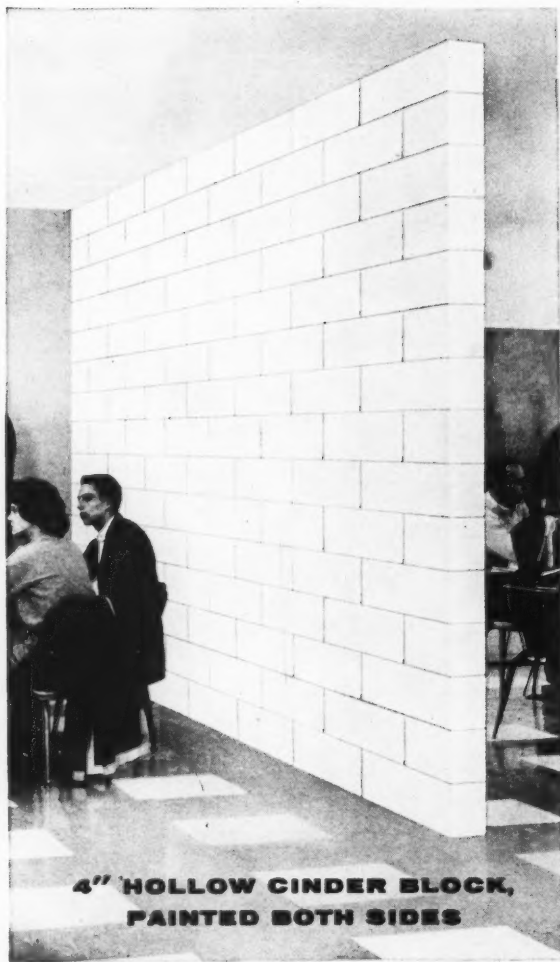
These developments are of immediate importance to designers and specification writers concerned with commercial and institutional construction and remodeling.

In the interest of disseminating samples and specification information as quickly as possible, a complete package is ready for you. We sincerely believe that this material will update working knowledge of Formica® laminated plastic. We urgently suggest you write for it.





**SOUNDMASTER 240  
BY MODERNFOLD**



**4" HOLLOW CINDER BLOCK,  
PAINTED BOTH SIDES**

## **CERTIFIED EQUAL IN SOUND REDUCTION**

This single Soundmaster 240 not only equals . . . but *exceeds\** the sound privacy you get from a permanent wall of four-inch hollow cinder block, painted on both sides.

In addition, this operable wall gives you the instant space flexibility that no perma-

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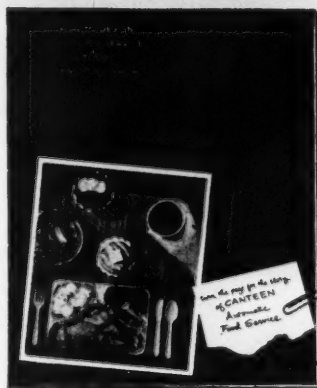


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The best ideas are more exciting  
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Gull-winged roof  
of concrete fits  
a restaurant to its  
seaside setting

Restless blue water, white sails, sleek hulls! Add to this scene on California's Newport Bay the strikingly designed Stuft Shirt Restaurant. The building is concrete throughout. Here again, this modern material asserts its ability to depart from the conventional. Thirty-six domes of thin-shell concrete form the roof, with cantilevered half-

PORTLAND CEMENT ASSOCIATION

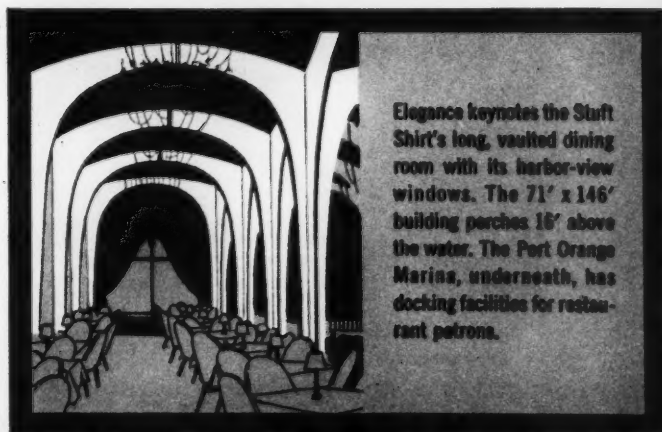




**Stuft Shirt Restaurant, Newport Beach, Calif.** Architects: Ladd & Kelsey, Pasadena, Calif.  
Structural Engineer: R. R. Bradshaw, Van Nuys, Calif. General Contractor: Encino Construction Inc., Encino, Calif. Photograph by Ezra Stoller.

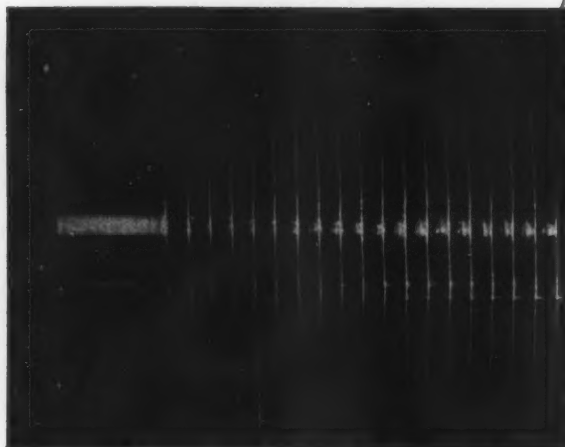
domes on the perimeter creating the feeling of winged grace. Concrete quatrefoil arches atop the 50 supporting columns rising from the water effect added beauty—inside, as well as out.

Today, the versatility of modern concrete is being recognized by more and more architects seeking to broaden their design explorations.



Elegance keynotes the Stuft Shirt's long, vaulted dining room with its harbor-view windows. The 71' x 146' building perches 16' above the water. The Port Orange Marina, underneath, has docking facilities for restaurant patrons.





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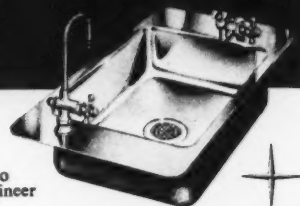
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Specifications:

Cat. No.	Gauge	Outside Dim.	Bowl Size	Depth
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1624-18	18	24" x 16"	16" x 14"	7-1/4"
1724-20	20	24" x 17"	16" x 14"	7-1/4"
1724-18	18	24" x 17"	16" x 14"	7-1/4"
1821-20	20	21" x 18"	16" x 14"	7-1/4"
1821-18	18	21" x 18"	16" x 14"	7-1/4"
2421-20	20	24" x 21"	17-1/2" x 15"	7-1/4"
2421-18	18	24" x 21"	17-1/2" x 15"	7-1/4"
1828-20	20	28" x 18"	20" x 16"	7-1/4"
1828-18	18	28" x 18"	20" x 16"	7-1/4"
1839 D.B.	18	39" x 18"	14" x 16" L.B. 12" x 14" R.B.	4"

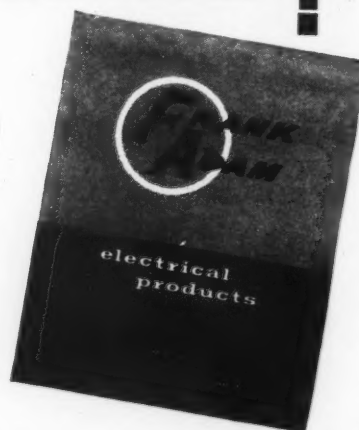
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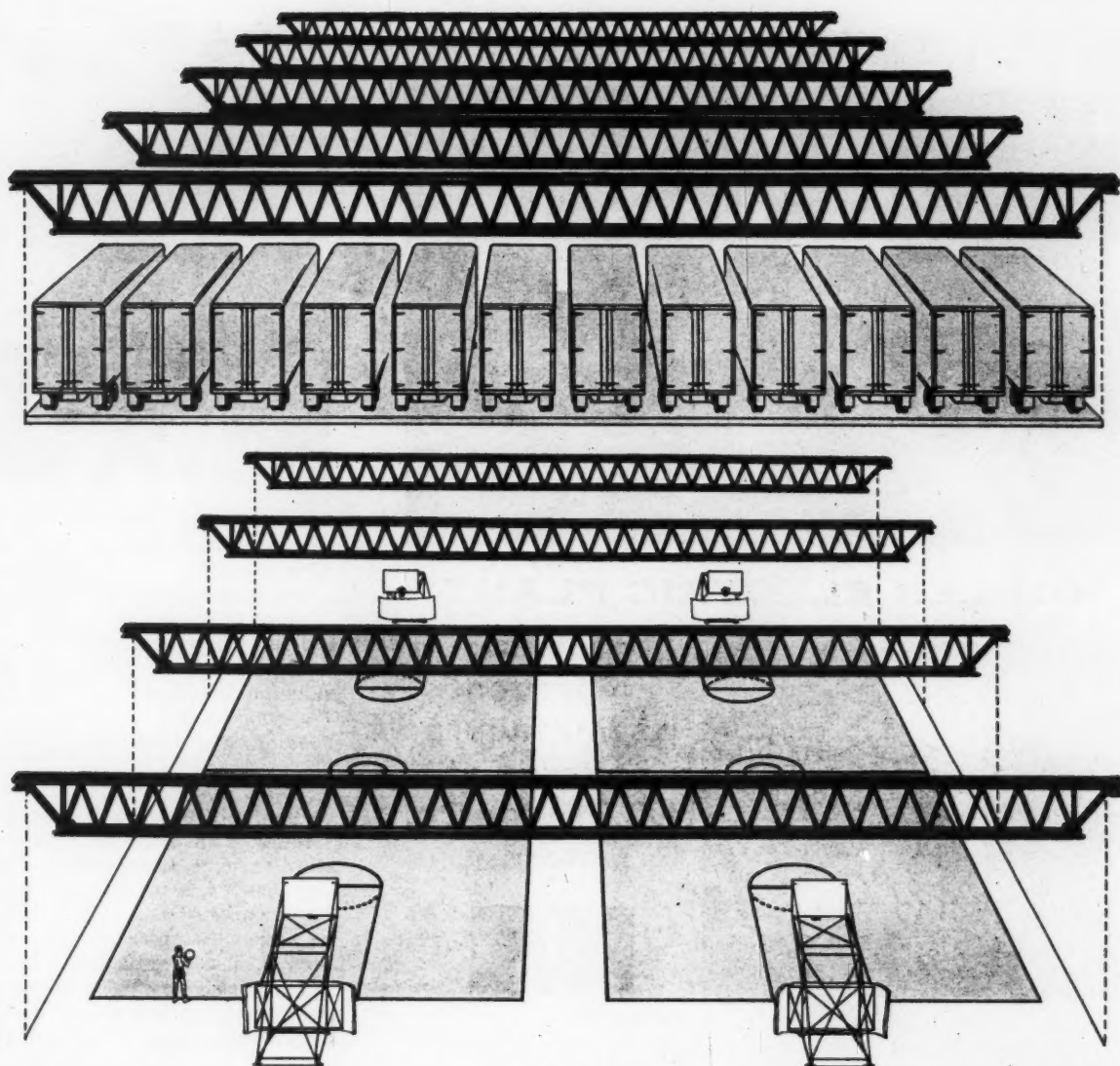
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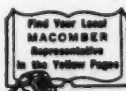
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**MACOMBER**  
CANTON 1, OHIO

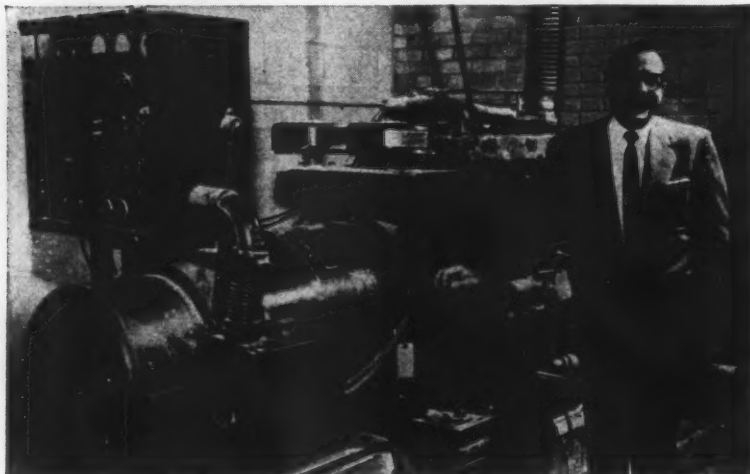
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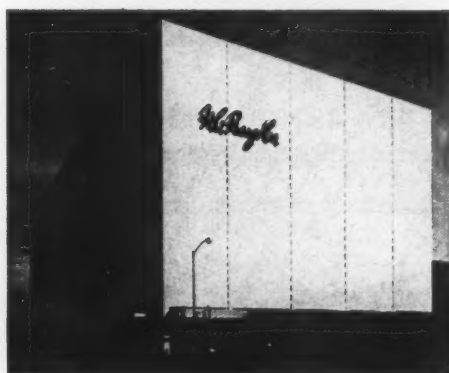
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★ A. R. Voelker, superintendent of maintenance for H. C. Prange Co., with Kohler Model 75R78, 75 KW, 120/208 volt AC.



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power failure  
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H.C. Prange Co.  
store



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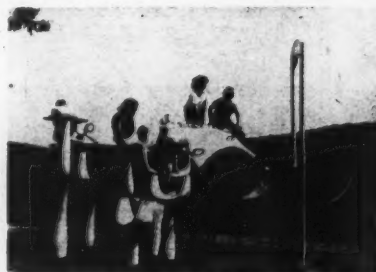
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## Product Reports

continued from page 226

### Compact Playgrounds

Packaged playgrounds called play-scapes combine economy and safety with sculptured design. They are de-



signed with such built-in safety factors as no moving parts and no piece higher than five ft. Individual pieces are age-graded. A typical playscape is about 50 ft sq, and contains a selection from a total collection of 32 devices. Planning, design, and consultation services are available. *Playground Corp. of America, 16 E. 52nd St., New York, N.Y.*

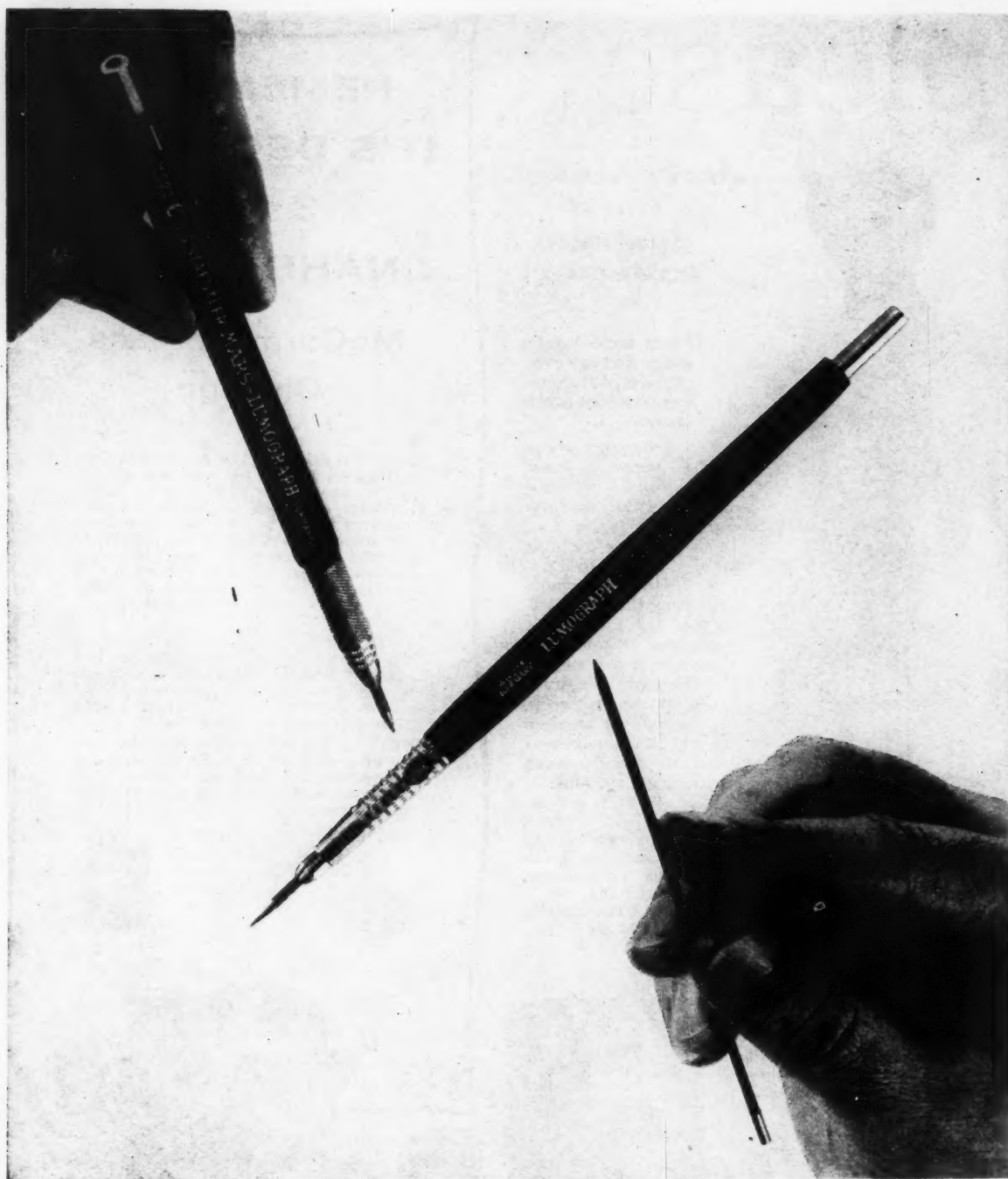
### Geodesic Dome Shelter

A lightweight, dome-shaped structure 22 ft in diameter, said to be sturdier, more durable and lower in cost than a tent of equal size now is being marketed as a ready-to-assemble shelter. *Geospace* is a free-standing, portable geodesic dome 12½ ft tall and weighing only 450 pounds but containing 352 square feet of usable floor space. It sells for \$345



f.o.b. Baxley, Ga. Shelter is formed from prefabricated triangular panels of one-half inch thick *Fomecor* board, resin coated for weather resistance, which are bent and bolted together at the site, available in pale yellow, forest green and eggshell white. *Geospace Dome Shelters, 800 N. Lindbergh Blvd., St. Louis 66, Mo.*  
more products on page 240





**LATEST WORD FROM MARS**  
is the superb new Technico lead holder—with clear-view degree indicator placed right at your fingertips. Contoured for perfect

balance, with new positive finger grip, it's the newest of many fine MARS drafting aids—all designed to make your work easier, and to make it look better and reproduce better.

Among the famous imported Mars drafting products are: the Mars-Technico push-button lead holders (with adjustable degree indicator\*, with specific degree imprint, the economy model\*); Mars-Lumograph drawing leads\*, 18 degrees, EXB to 9H; Mars-Lumograph drawing pencils, 19 degrees, EXEXB to 9H; Mars-Duralar pencils and leads for drafting on Mylar®-base drafting film —5 special degrees, K1 to K5; Mars-Duralar Technicos with adjustable Duralar degree indicator; Mars-Lumochrom colored drawing pencils, 24 shades. Also: Mars Pocket-Technico for field use; Mars pencil and lead sharpeners; Mars Non-Print pencils and leads; Mars-Duralar erasers. Mars products are available at better engineering and drafting material suppliers everywhere.

© T.M. for duPONT's Polyester film. \*Shown.

*the pencil that's as good as it looks*

**MARS**  
J.S. STAEDTLER, INC.  
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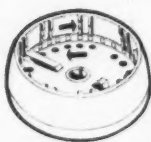
**don't make  
me a  
garbage  
collector!**

If you must handle soggy garbage even dream kitchens can turn into nightmares!

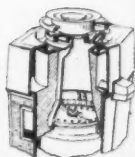
For my new home, I insist on a new, beautiful In-Sink-Erator disposer\*. Unlike others, In-Sink-Erator prevents jams thanks to exclusive, patented, automatic reversing feature. It wishes garbage down the drain never to be seen, smelled, or touched again . . . a good reason to specify, even with septic systems.

Write for full information, or a personal demonstration by an In-Sink-Erator representative. Address Dept. AR-761, In-Sink-Erator Manufacturing Company, 1225 14th St., Racine, Wis.

\*An overwhelming majority of delegates to the Women's Conference on Housing voted the garbage disposer the most wanted appliance of all.



Unlike other disposers, In-Sink-Erator prevents jams thanks to exclusive, patented automatic reversing feature. Doubles shredder life. Self-cleaning.



In-Sink-Erator's exclusive sound-absorbent liner permanently blankets interior of unit . . . smother's sound! That's why it's quieter than any other.



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The originator and perfecter of Garbage Disposers • In-Sink-Erator Manufacturing Co., Racine, Wisconsin

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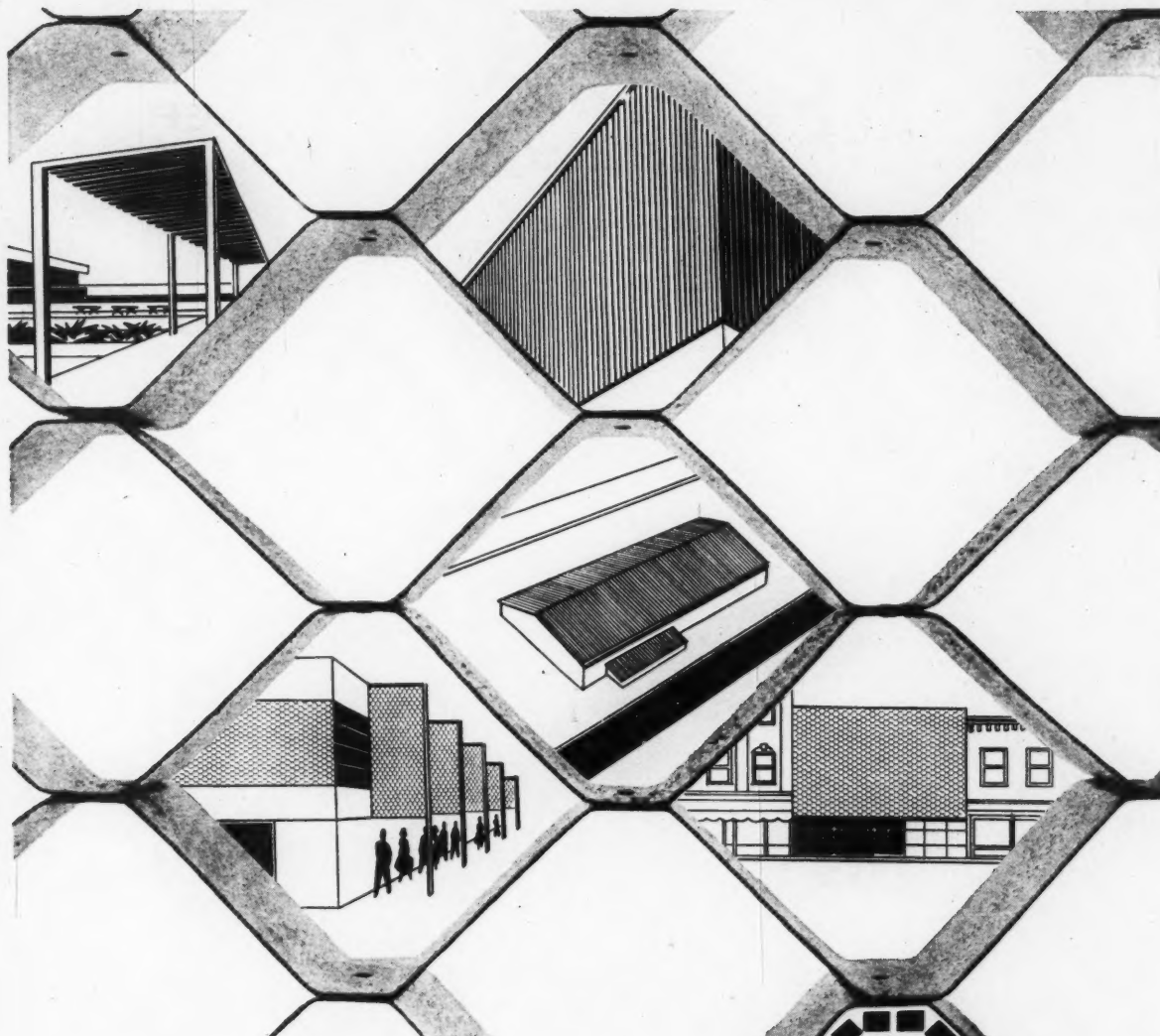
**BETTER TIME!** Better weather in Chicago at this time—long-time weather records prove it! Better chance to get a head start on next year's planning. Better opportunity to enjoy Chicago—pre-Christmas shopping, for example!

**BETTER BE HERE!** Register now: \$15 for men, \$10 for women. For advance registration and hotel reservations, contact your local NAHB office, or write to the address below.

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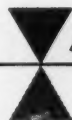
Company

Address

City

Zone

State

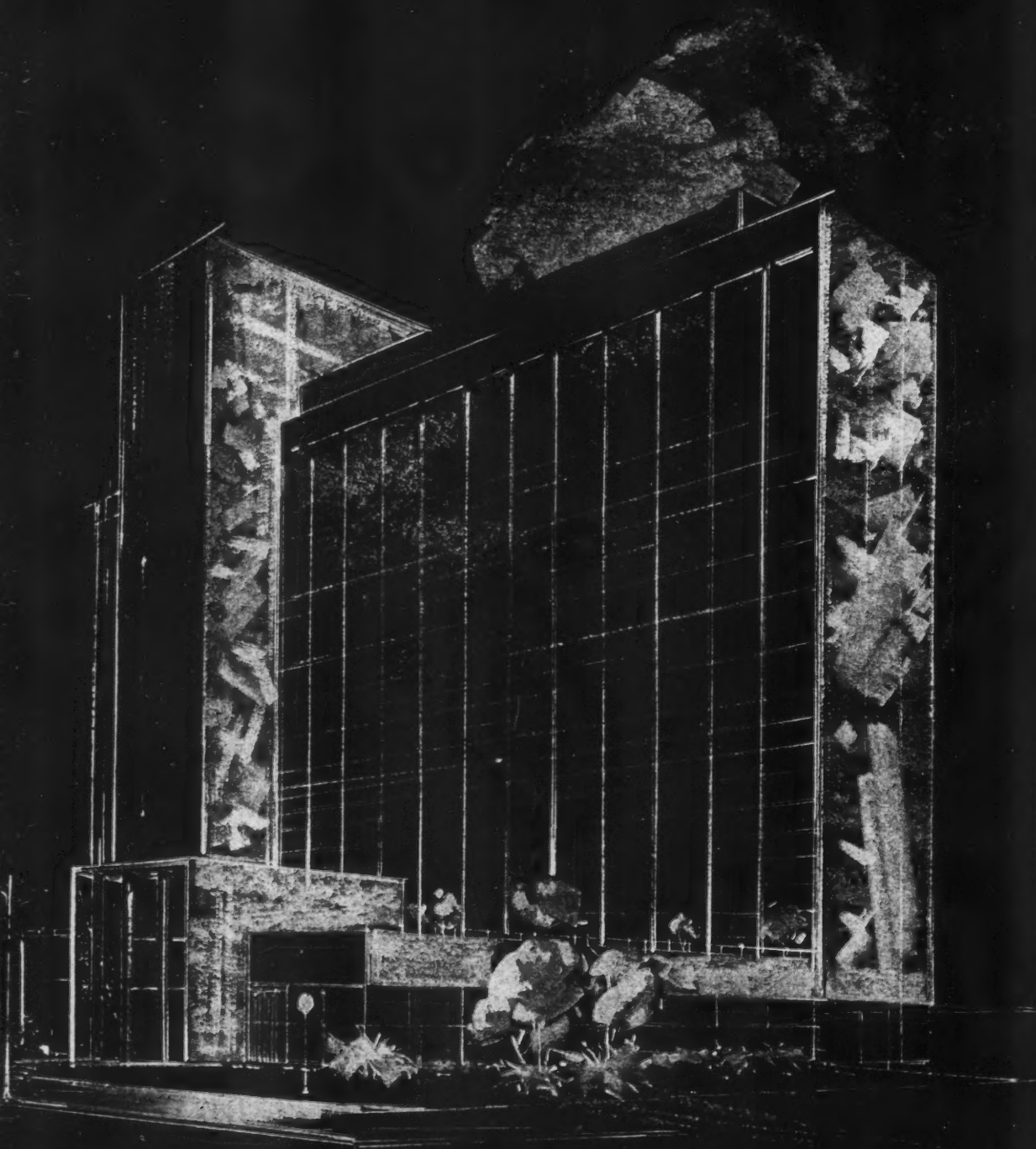


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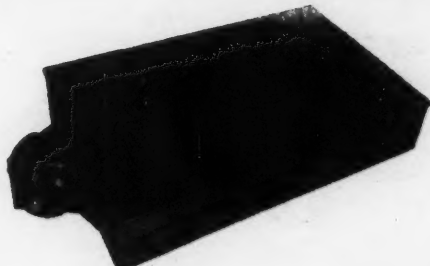
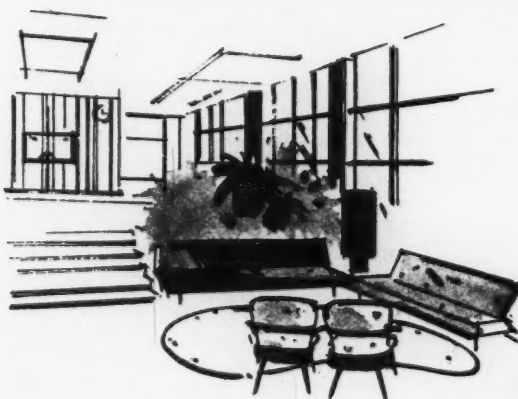
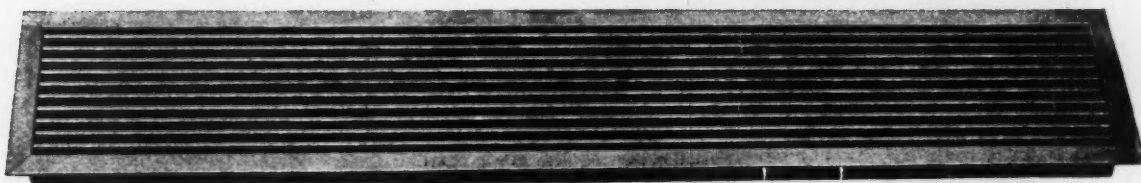
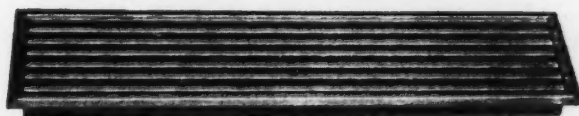
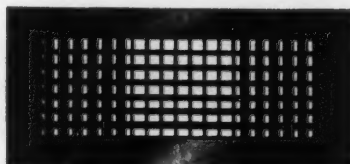
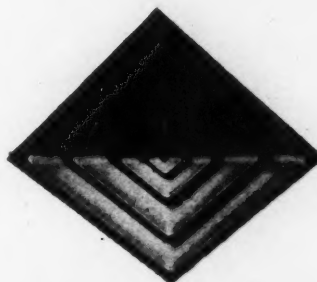
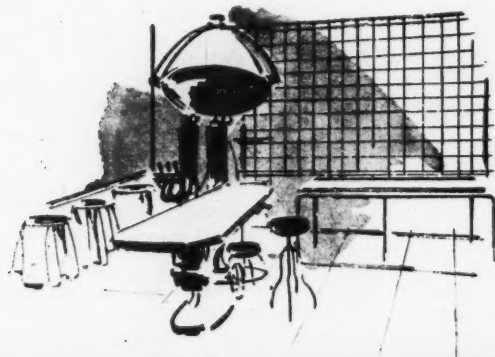




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# GUTH multi-mount EXITS



## THE FIRST ALL-NEW "EXITS"

... since doors were invented!

A slight overstatement, maybe. But these Guth Exits DO introduce a lot of new ideas.

**DESIGN-WISE** — They're on the elegant side. A dramatic new shape with trapezoidal housing. Guth quality construction throughout. No screws to unlatch on face-plate doors. Doors lift up and swing open for easy servicing. The face slants to point directly at the natural "line of sight."

**THREE LAMP SOURCES** — Your choice of Incandescent, Fluorescent or those new, right-out-of-the future Electroluminescent panels.

**FIVE MOUNTINGS** — Whatever you prefer! Drawings below show complete selection.



Top Mounted



Surface Mounted



Recess Mounted



End Mounted

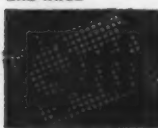


Triangular

One piece, die-formed, hinged Face Plates: All glass or cut out metal letters with glass behind.

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since 1902

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## Product Reports

continued from page 234

### Domed Plastic Skylight

A new roof window by Ventarama is designed to function as both skylight and operating window. Roof window



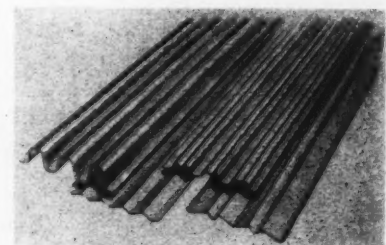
can be installed on either flat or pitched roofs, and can be opened awning-fashion to act as a scoop for ventilation air. A single package includes screening, flashing and operating control. Framing is aluminum, sizes from 22 by 30 in. to 45½ in. square. Dome consists of a double layer of clear plastic providing insulation. It is also available in translucent or colored plastic. *Ventarama Skylight Corp., 174 Main St., Port Washington, N.Y.*

### Clear Finish for Exterior

A clear satin finish for wood which closely simulates an expensive hand-rubbed effect and is suitable for indoor, outdoor and marine use, is newly perfected. Varmor Satin, companion to Varmor Clear Finish Gloss, is a clear, semi-luster finish having sufficient resistance to wear, weather and water to be used on any wood surface. *Pratt & Lambert, Inc., Tonawanda St., Buffalo, N.Y.*

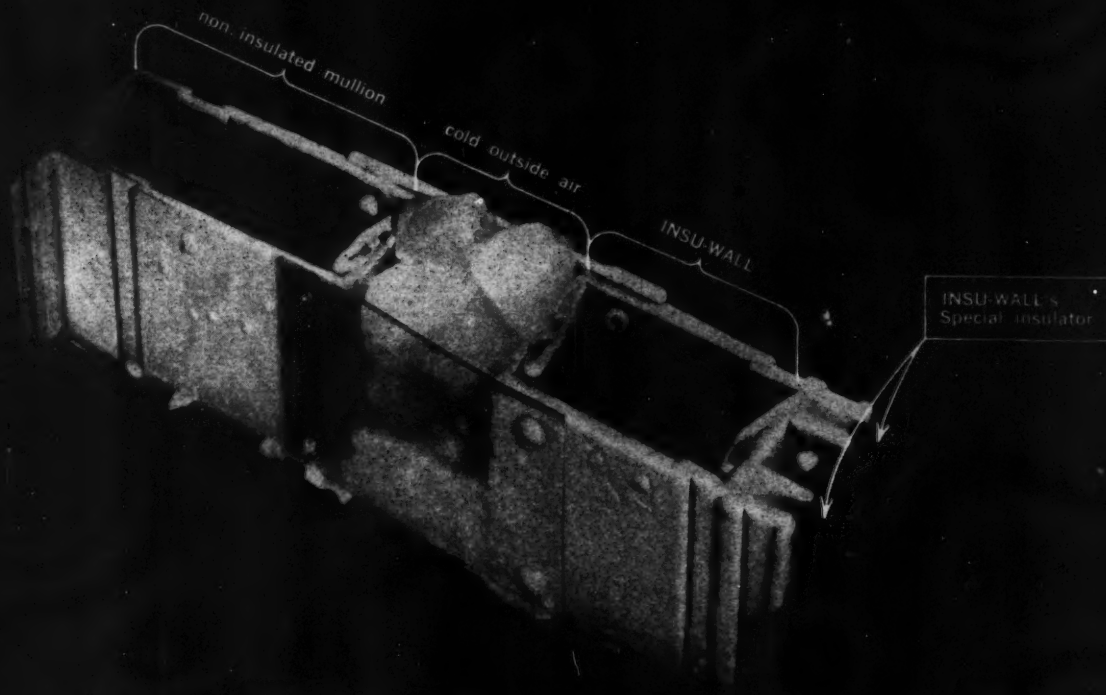
### Fiberglass Panels

Lascolite fiberglass panels can be made to duplicate any sheet contour shape to architect's design in runs as



low as 10,000 sq ft. A wide variety of colors is available. *Lasco Industries, 1561 Chapin Rd., Montebello, Calif.*





# here is the proof...

## look how new MARMET INSU-WALL finally licks the condensation, thermal conduction problem in aluminum curtain-wall

Two kinds of MARMET curtain wall mullions stand *face to face* in the photo above . . . exposed to some crushed dry ice . . . duplicating severely cold, outside air. The mullion section to the left is from regular non-insulated curtain-wall . . . the mullion section to the right from MARMET's new INSU-WALL. Notice the dark strips separating the inner wall metal from outside mullion areas. This is INSU-WALL's specially formulated insulator, acting as an almost complete barrier to thermal conduction.

Observe the dry condition of the *inner wall metal* on INSU-WALL . . . the complete absence of condensation or frost despite the sub-freezing temperatures to which the exterior metal is being subjected. This is an unretouched photo of the test demonstration kit now being shown by MARMET sales representatives. Although this offers remarkable proof of INSU-WALL's performance . . . review of independent laboratory tests, while less dramatic, is even *more* impressive.

New INSU-WALL retains the beauty and permanence of finish achieved with aluminum curtain wall . . . yet cuts

heat losses through the high conduction factor of this metal by as much as 63%.

And just look at these

### Key advantages in INSU-WALL

- Reduces heat loss through curtain wall metal in severe winter cold. Because the condensation problem does not exist with Insu-Wall, perimeter heating may be replaced with less expensive systems.
- Licks the problem of condensation forming on interior curtain wall metal . . . with attendant possible damage to plaster, wall paneling, carpeting, drapes and furnishings.
- Reduces air conditioning load by preventing heat transfer into building through sun heated curtain wall framing in warm climates or summer temperatures.
- Standard split mull assembly system requires no added installation time or added assembly labor on the site.

To see the test demonstration above, yourself, and get complete technical details . . . just call your local MARMET representative.

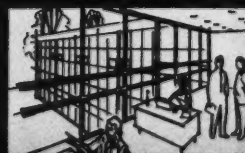
For additional information on the complete line of MARMET products — consult Sweet's Catalog File No. 3a or write to Mar MARMET for catalog.



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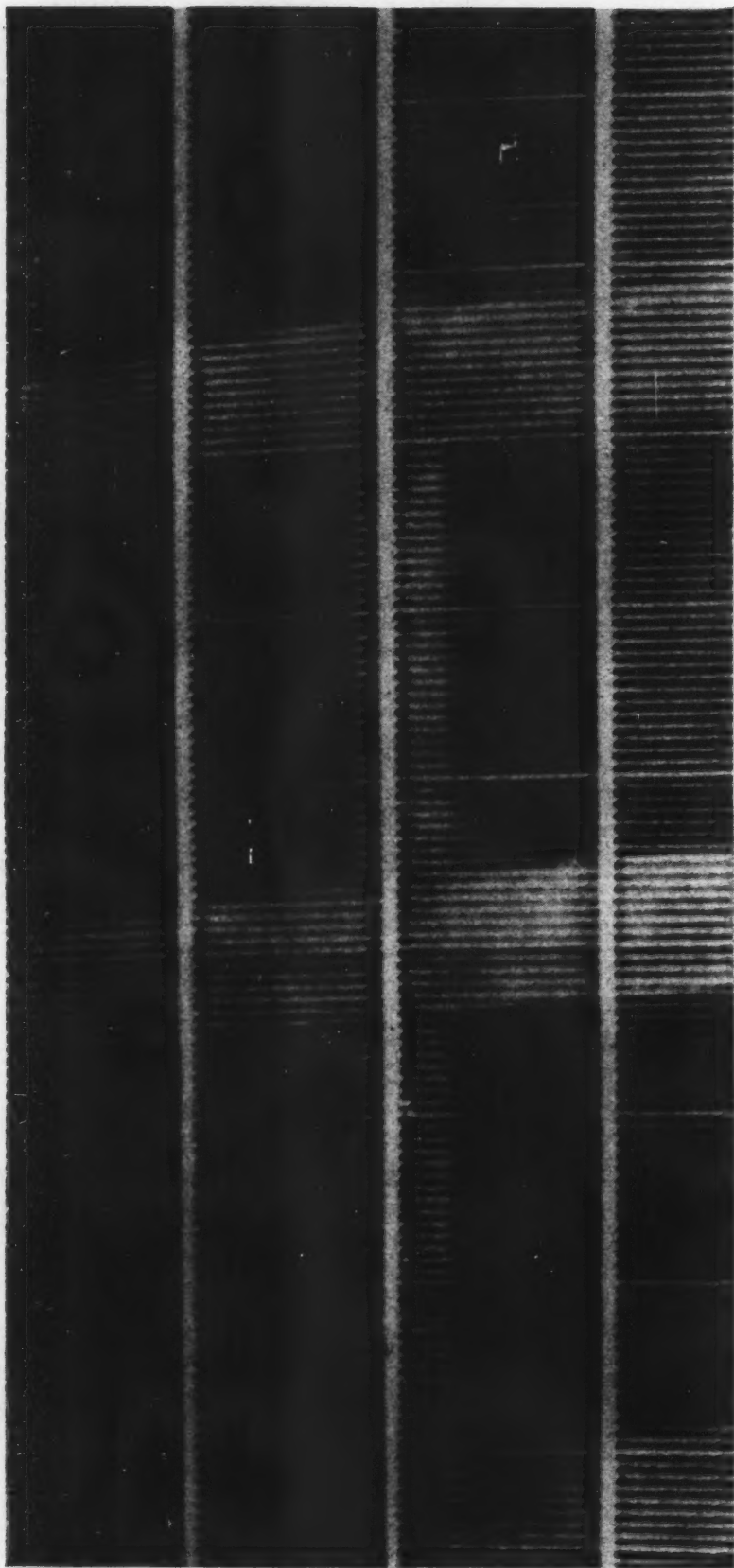


SCHOOLS and COLLEGES

INDOOR SWIMMING POOLS

E. J. Borsari, President, MARMET, INC., FAIRBANKS, ALASKA  
A. J. Borsari, Vice President, MARMET, INC., FAIRBANKS, ALASKA

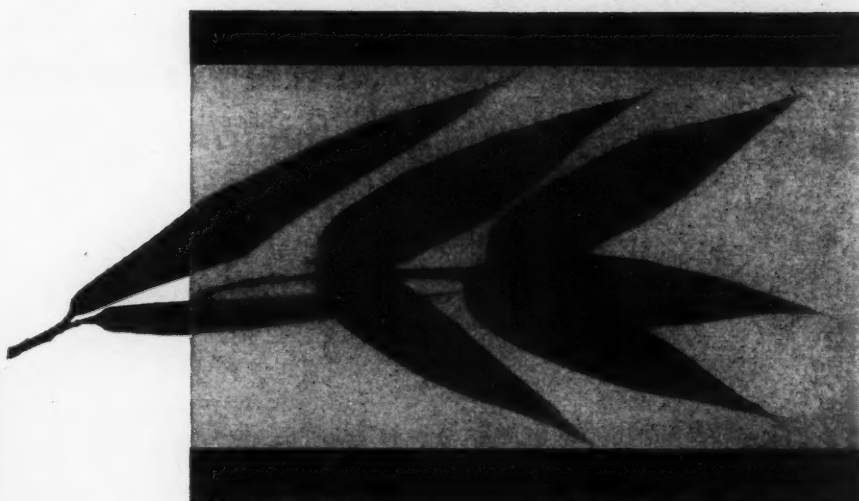




THIS IS  
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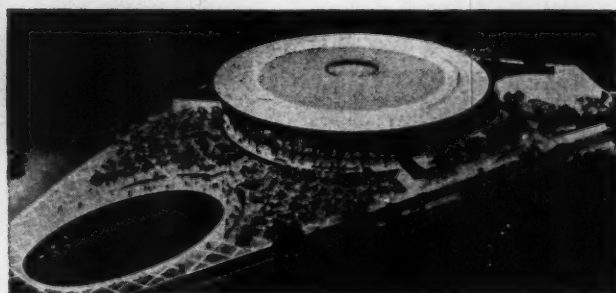
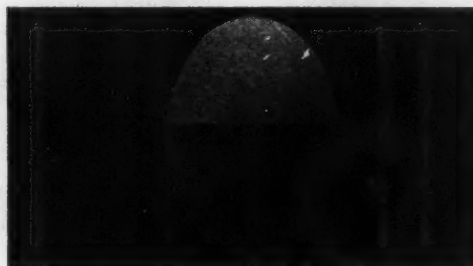


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**ALSYNITE**  
TRANSLUCENT PANELS



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**gives you a free hand in roof design**

Whatever your concept of shelter surface...from flat...to curve...to the most advanced geometric design...Flintkote Monoform can do! Here is the most versatile method of roof application ever developed. The Sealzit gun shown above applies special Monoform compounds simultaneously with chopped reinforcing glass fibres, forming a monolithic protective membrane that is resilient, tough, highly weather resistant. Whatever structure you may now have in the design stage, it should have a Monoform roof—and be sure to let the Flintkote Monoform system help free your hand in future roof designs!



The Sealzit gun is manufactured under the following U.S. Patents: 2,787,314; 2,933,125 and 2,813,751. Other U.S. patents pending. Patented in Canada. World-wide patents pending.

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# Staccato

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### LINEAR AIR DIFFUSERS

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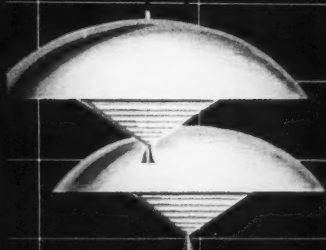
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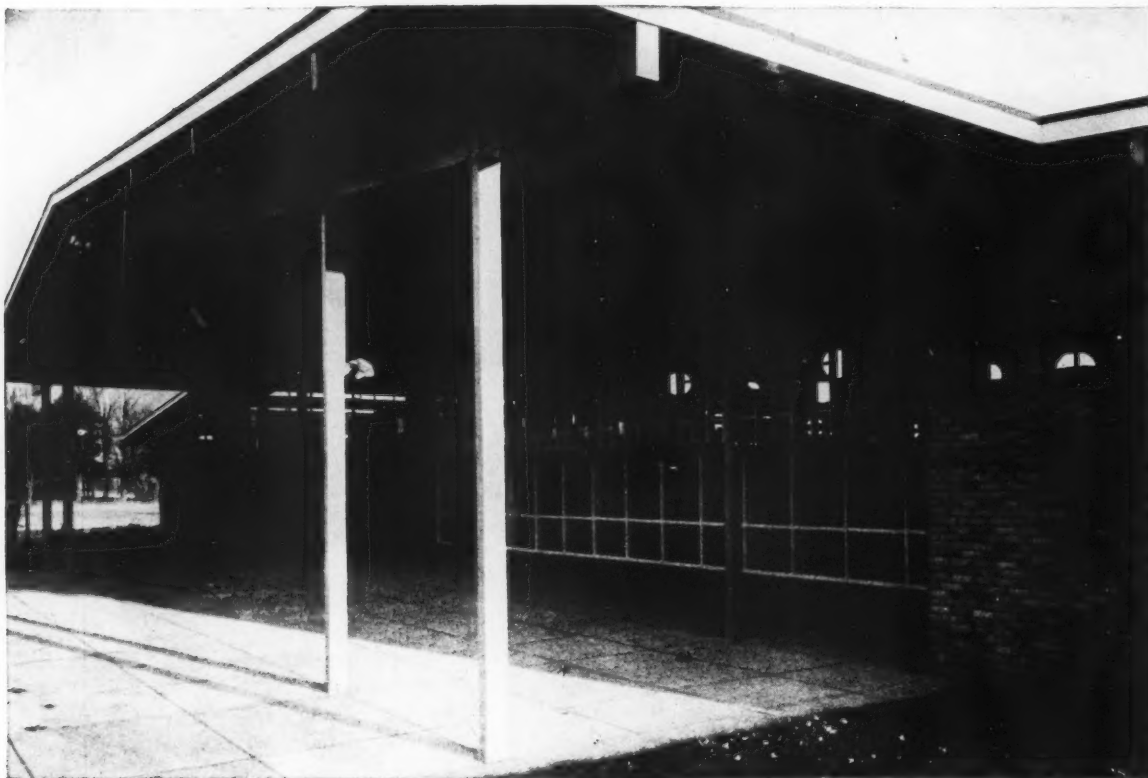
# STARK

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# HOW THE DODGE REPORTER *aided architect and community in building this flexible school*



Architect Huge Stubbins & Associates have presented this Massachusetts community with a handsome, efficient and flexible elementary school — within a limited budget. "As always," says Tetsuo Takayanagi Job Captain on the project, "we were concerned not only with the problems of design, but with the task of bringing together the right men and materials to *implement* it — at reasonable cost. We believe our Dodge Reporter was a major factor in helping us do this.

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Practical architects know that it's good practice to keep the Dodge Reporter informed. Make him welcome in your office — as a service to your clients and to yourself.

Winthrop Elementary School, Hamilton, Mass.

Architects: Hugh Stubbins & Associates

This compact school is designed on a rectangular plan, under a single roof, with classrooms placed along the perimeter of an all-purpose-utility-gymnasium core. Facilities are designed to handle the eventual addition of six classrooms. The frame is of laminated wood, with exterior walls of brick, interiors of plaster. Plastic domes supplement daylighting. Hi-velocity hot air blenders, in duct trenches beneath the corridors supply continuous grilles below the windows.



## DODGE REPORTS

CONSTRUCTION NEWS SERVICE

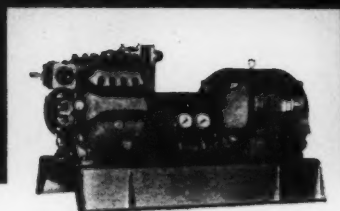
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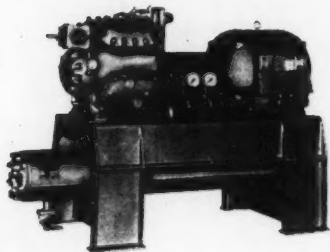
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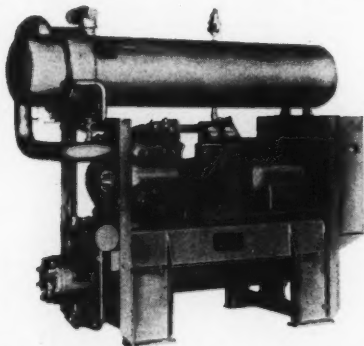
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# The shape for things to come ...in structural steel



Add low-cost **USS National Hollow Structural Tubing** to the list of available structural sections.

**USS National Hollow Structural Tubing** is made of hot-rolled carbon steel. This product has a tensile strength of up to 80,000 psi, and a minimum yield strength of 33,000 or 36,000 psi—maximum strength at minimum cost. It conforms to the chemical and mechanical properties of ASTM A-7 and A-36 specifications. Because of the hollow design, you obtain maximum strength with minimum weight. It's compact, easy to handle and maintain. It is a highly efficient structural member especially in compression and where subjected to bending moments in more than one direction.

**USS National Hollow Structural Tubing** comes in a wide range of stock sizes: 1" x 1" to 10" x 10" for squares, up to 32" perimeter for rectangles, and in lengths 36 to 42 feet. For more detailed information, send the coupon.

USS and National are registered trademarks



**National Tube  
Division of  
United States Steel**





## For that BIG or extra RUGGED Door, Kinnear's "Goliath" slat is unbeatable

Roll-formed of steel or aluminum\* this giant slat forms a curtain of unmatched strength — an almost impenetrable barrier! Ideal for extra large and special openings such as in prisons,

piers, gantry cranes — wherever ruggedness and durability count more than the extra cost.

All Kinnear Rolling Door advantages are retained in the "Goliath" slat . . . space-saving, coiling-upward action . . . jamb-to-jamb doorway clearance . . . fast-action push-button control by means of the all-new Kinnear Motor Operator (optional) . . . protection against wind, weather, vandals, intruders . . . valuable resistance to fire . . . an unmatched record for long, low-maintenance service at low cost. Write today for free information.

\*14 or 16 U.S. gauge steel; 10 or 12 B and S gauge aluminum. Other Kinnear curtain slats range down to 1 1/4" width, in various gauges of aluminum, steel or other metals.

### The KINNEAR Manufacturing Co.

FACTORIES:

1860-80 Fields Avenue, Columbus 16, Ohio

1742 Yosemite Ave., San Francisco 24, Calif.

Offices and Representatives in All Principal Cities

**KINNEAR**  
ROLLING DOORS  
Saving Ways in Doorways

Slat No. 9  
(Actual Size)

## Office Literature

continued from page 194

### Blueprint Reading Course

A technical blueprint course is available in English and soon will be available in major foreign languages. Consisting of 12 LP records and a 24-page blueprint manual, the course uses easy-to-understand language. The complete course is \$9.90, with \$1.50 each for additional manuals. *Natec Publications, Inc., 214 W 23rd St., New York 11, N.Y.*

### Movable Partition File

A special file includes sample specification sheets for interior movable walls and partitions. *Aluma-Wall Partition Co., 859 E 108th St., Los Angeles 59, Calif.*

### Curtain Walls

A 16-page catalog illustrates various types of, and typical specifications for, curtain walls, window walls and interior division walls. *W. P. Fuller & Co., Trimview Metal Fabricating Division, 600 N. Third Ave., Covina, Calif.*

### X-Ray Layout File

A 64-page loose-leaf reference file contains scale drawings and specifications on x-ray processing tanks, coolers and all standard x-ray accessories with complete plumbing roughing in details to aid architectural layouts. *Bar-Ray Products, Inc., 209-25th St., Brooklyn 32, N.Y.*

### Prestressed Concrete

Illustrated 20-page booklet describes 21 types of structures in which prestressed concrete is often used and gives reason for the selections. *Prestressed Concrete Institute, 205 W. Wacker Dr., Chicago 6, Ill.*

### Spec Sheets on Closet Seats

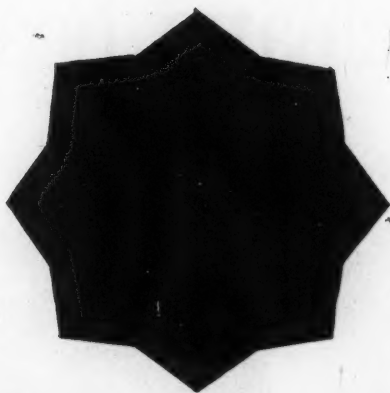
Specification sheets on solid plastic closet seats designed for institutional, commercial and industrial applications. *Beneke Corp., Columbus, Miss.*

### Plastics Lighting

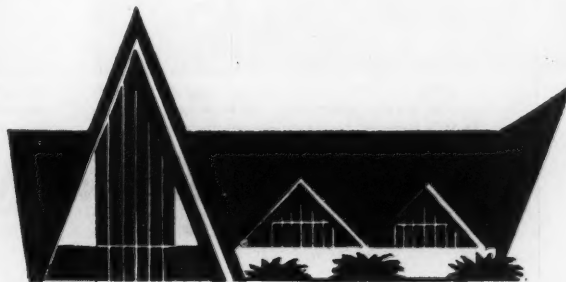
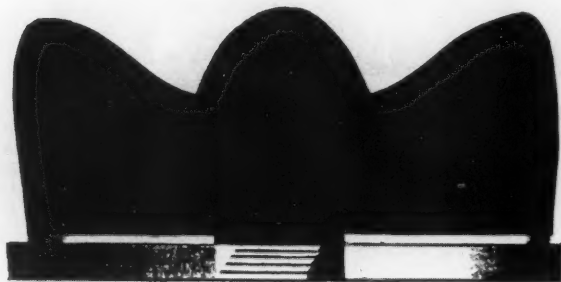
K-S-H Plastics, Inc. has re-issued their plastics lighting catalog, now including the white opal polystyrene and acrylic prismatic lens panels. *K-S-H Plastics, Inc., 10212 Manchester, St. Louis 22, Mo.*

more literature on page 260





In today's most unconventional roof designs...



## New NEOPRENE-HYPALON® roofing systems assure lasting beauty and protection

Imaginative roof designs, embodying geometric forms of every shape and contour, are today being made practical by neoprene and HYPALON—a pair of versatile DuPont synthetic rubbers.

By providing workable solutions to many problems of modern roof construction, these new roofing systems free the architect from limitations imposed by conventional materials. Easily applied over almost any commonly used substrate, they cure into tough, elastic, weathertight films having exceptional resistance to ozone and weathering as well as oils and chemicals, abrasion and flame.

Moreover, they retain these properties despite continual outdoor exposure, neither soften with heat nor embrittle with cold, expand and contract with the roof deck. As a roofing system, neoprene provides low-cost film build-up; HYPALON, a wide choice of stable, attractive topcoat colors. Separately or in combination, resilient neoprene and HYPALON assure lasting protection with minimum upkeep.

DuPont produces only the elastomers, neoprene and HYPALON; not the finished roofing materials themselves. For a list of suppliers and our booklet, "Color-

ful, Durable Roof Coatings Made with Neoprene and HYPALON," just fill in and mail the coupon. There is no obligation whatsoever. E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Dept. AR-10, Wilmington 98, Delaware.

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ELASTOMERS FOR ROOFING



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E. I. du Pont de Nemours & Co. (Inc.)  
Elastomer Chemicals Department AR-10  
Wilmington 98, Delaware

Please send me by return mail the booklet, "Colorful, Durable Roof Coatings Made with Neoprene and HYPALON," plus list of suppliers.

Name

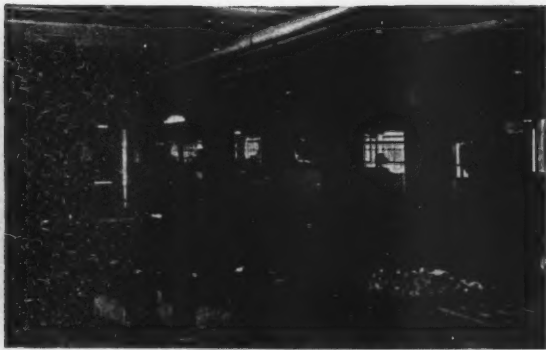
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Street

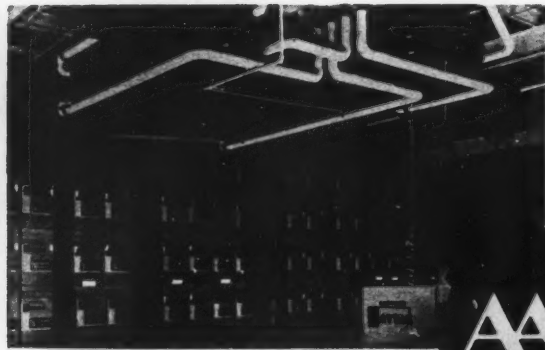
City  Zone  State



# AAF cleans, heats, moves air



A battery of AAF dry-type dust collectors exhausting grinding operations. After-cleaners on collectors provide for re-circulation of cleaned air.



AAF packaged central station air handling units, suspended from the ceiling in the warehouse, save valuable space, provide quiet operation.

AAF electronic air cleaners provide clean air for the Maytag Headquarters Building, Newton, Iowa. Architects: Brooks-Borg, Des Moines. Air Conditioning Engineer: William Hanes, Des Moines.

**AAF**

AIR  
CLEANING  
PRODUCTS  
No Filters  
Dust Collectors

AIR  
CONDITIONING  
HEATING &  
VENTILATING  
PRODUCTS

**COMPLETELY  
CONDITIONED  
AIR**





# to make it work for Maytag

## Multi-product installation demonstrates AAF's capability for complete air engineering

**T**HE manufacture of major appliances demands that air be put to work in many different ways. Here are the jobs it had to do at the Maytag office and plants in Newton, Iowa: (1) help keep the interior of the impressive new headquarters building perpetually clean, (2) control dust from grinding operations, (3) provide heating and ventilating for the warehouse and service repair area, (4) control dust from polishing operations, (5) provide proper exhaust from plant and processing operations, and (6) help provide a dust-free atmosphere in the enameling department.

AAF is the only company that provides *all* the major components for *completely* conditioned air. Just as important, AAF offers the knowledge and experience to coordinate the functioning of these components into one integrated system.

If air must do many jobs in the building you are planning, talk with AAF. Booklet 518 describes the complete line of AAF component products. If you would like a free copy, address Richard W. Smith, American Air Filter Company, Inc., 389 Central Ave., Louisville, Ky. In Canada: American Air Filter of Canada, Ltd., 400 Stinson Blvd., Montreal 9.

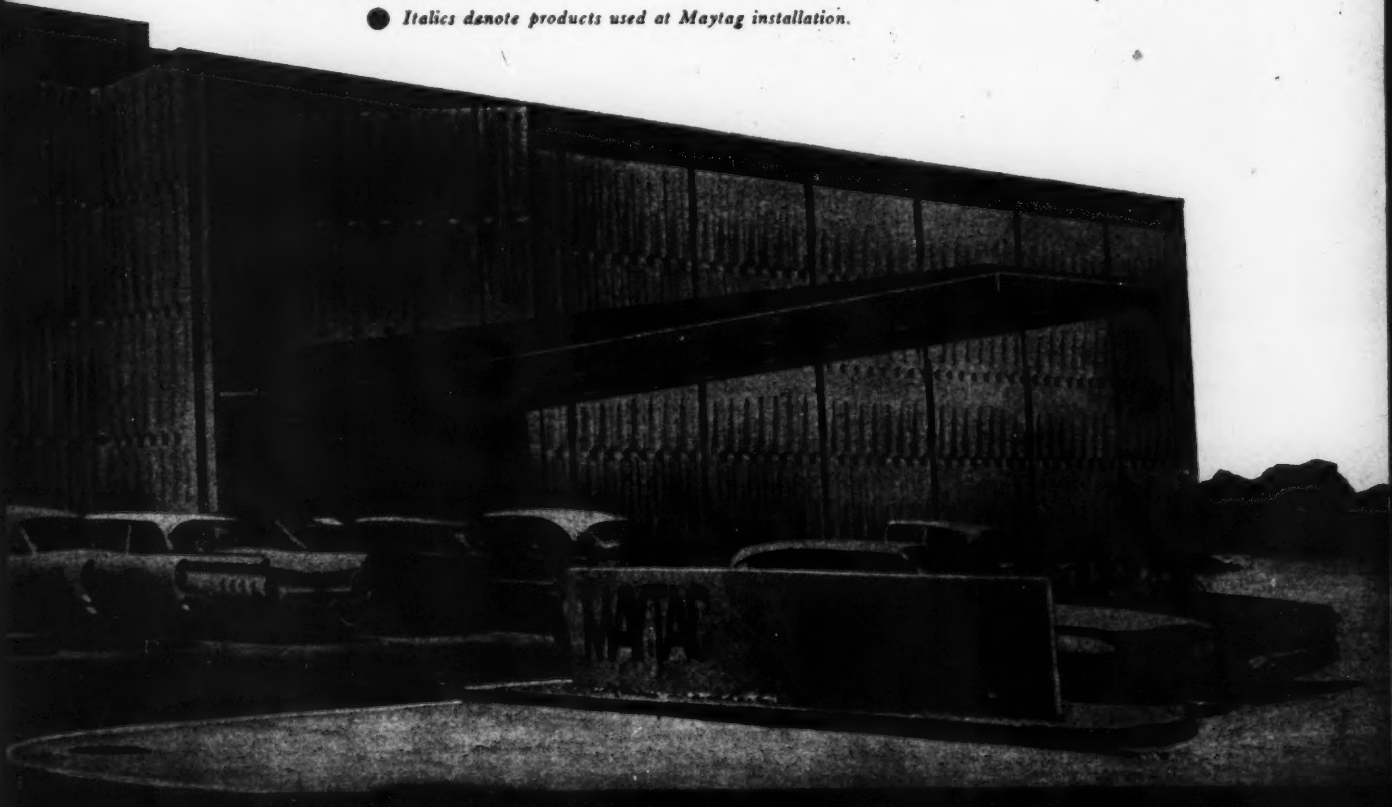


## American Air Filter

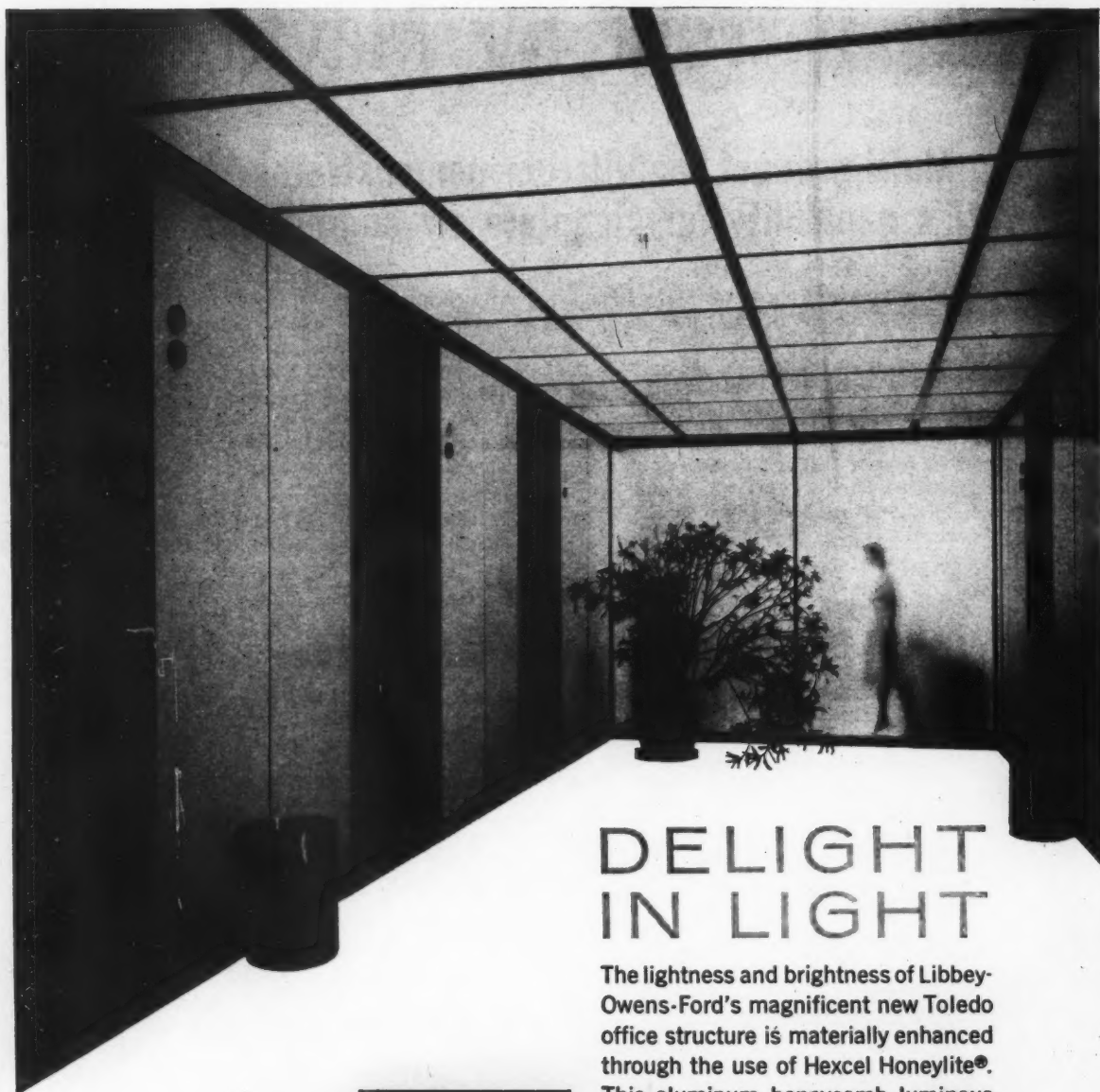
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**AIR CLEANING:** (Atmospheric Dust) *AAF electronic air cleaners, automatic air filters, unit filters, engine & compressor filters.* (Process Dust) *electrostatic precipitators, wet-type collectors, dry-type collectors, fabric arresters.* **AIR CONDITIONING,** **HEATING & VENTILATING:** *Herman Nelson air conditioning unit ventilators, unit ventilators, portable heaters; Kennard/Nelson dual-duct air conditioning units, multi-zone air conditioning units, packaged central station air handling units, sprayed-coil dehumidifiers, fan-coil units, packaged liquid chillers, cooling towers, evaporative condensers, direct-expansion coils, water coils, steam coils, unit blowers, industrial exhausters, centrifugal fans, unit heaters, radiation products; Illinois traps, valves, specialties, heating systems and controls.*

● *Italics denote products used at Maytag installation.*

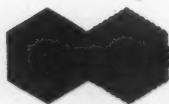
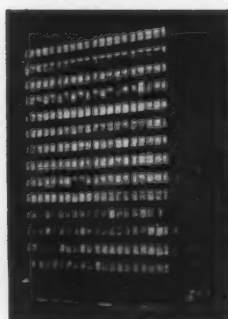






## DELIGHT IN LIGHT

The lightness and brightness of Libbey-Owens-Ford's magnificent new Toledo office structure is materially enhanced through the use of Hexcel Honeylite®. This aluminum honeycomb luminous ceiling system achieves shadow-free, maximum utilization of fluorescent lighting, yet effectively conceals all electrical and mechanical systems. Even air conditioning is installed above the Honeylite panels. All fifteen floors of this installation feature Honeylite ceilings, representing over 120,000 sq. ft. of this totally proven light diffusing system. Owner: Libbey-Owens-Ford, Toledo. Architects: Skidmore, Owings & Merrill. General Contractor: George P. Fuller Company, Electrical Contractor: Rogers Electric, Toledo. For complete Technical Data, send to your nearest Hexcel office.



**EXCEL PRODUCTS INC.**

*Stronger, lightweight materials for industry*

**Executive Offices:** Dept. G-8, 2332 Fourth St., Berkeley 10, Calif.

**Plants:** Berkeley, Oakland, El Segundo, Calif.; Havre de Grace, Md.

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## NORTH CAROLINA NATIONAL BANK

another of today's finest  
high-rise buildings — clad by

GENERAL BRONZE



The Charlotte skyline now boasts a striking new addition: the headquarters building of the North Carolina National Bank. General Bronze engineered, produced and erected the complete aluminum curtain wall system, as well as reversible aluminum windows and architectural metalwork.

*Architects: Walter Hook Associates, Inc.  
Contractor: Southeastern-Godde-Thompson and Street*

When you think of curtain walls...either skin or grid-and-panel systems...in aluminum, bronze, or stainless steel...think also of the design and engineering services only General Bronze can offer you. With close to half-century's experience in architectural metalwork and fenestration, and 16 years in curtain wall construction, General Bronze is uniquely equipped to help you realize the benefits and avoid the pitfalls of this highly specialized field.

For additional information, consult your Sweet's files... call in the General Bronze representative nearest you... or write to: General Bronze Corporation, Garden City, N. Y. • Sales Office: 100 Park Avenue, New York, N. Y.

PERMATITE DIVISION—Custom-built Windows, Curtain Walls, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows and Doors. BRACH MFG. CO. DIVISION—Radio, Television and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom Fabrication in Steel and Iron.

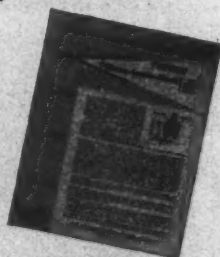




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factory mixed, ready for use in cartridge or bulk, assures absolute weathertightness for controlled joints, expansion joints and conventional caulking joints. It has a basic superiority over conventional sealants which require the use of ingredients that will migrate or oxidize in time, thus lowering sealant life and efficiency. Mono-Lasto-Meric is formulated with Tremco developed and Tremco manufactured pure 100% liquid polymer. The desired requirements of exceptional adhesion and enduring elasticity are inherent and permanent parts of the basic polymer. Absolutely non-staining on masonry surfaces.

For your next bonding, sealing or caulking assignment consider Mono-Lasto-Meric. A product data sheet designed for specifying authorities is available from your Tremco Representative or write: The Tremco Manufacturing Company, Cleveland 4, Ohio, or The Tremco Manufacturing Company (Canada) Limited, Toronto 17, Ontario.



"When you specify a Tremco Product  
... you specify a Tremco Service!"

SEE OUR CATALOG IN SWEET'S

## **Office Literature**

*continued from page 251*

### **Automatic Innkeeping**

The advantages of automatic innkeeping for hotels and motels are described in a 16-page booklet featuring centralized control systems for message signal, morning call and maid control. The booklet also describes electronic air cleaners, security systems, fire-detection systems and other forms of centralized control. *Minneapolis-Honeywell Commercial Division, 2727 S. Fourth Ave., Minneapolis 8, Minn.\**

### **Decorating With Canvas**

A 24-page color booklet illustrates more than 60 shapes and styles of canvas sunshades for windows, doorways and accessory uses. "Decorating and Shading With Canvas," price 25¢, *National Cotton Council of America, P. O. Box 9905, Memphis 12, Tenn.\**

### **Emergency Lighting Handbook**

A 96-page handbook on emergency lighting covering installation considerations, equipment specifications and maintenance requirements, is now available for \$2. *Electric Cord Co., Handbook Dept., 432 Plane St., Newark 2, N.J.\**

### **Metal Doors**

Doors of stainless steel, bronze and aluminum are described in two booklets. Doors are custom designed and need minimum maintenance. Details and photographs show installations. Editions V-48 and B-48 (Balanced Doors). *Elkison Bronze Co., Inc., Jamestown, N.Y.\**

### **Fire Safety**

Buyer's guide to portable fire extinguishers, smoke and fire detectors, and built-in carbon dioxide systems is a 12-page booklet which also gives information about accessory items. Brochure P-67, *Walter Kidde & Co., Inc., 675 Main St., Belleville 9, N.J.*

### **Recommended Design Practices**

Technical manual presents detailed engineering data on the design of metal buildings. *Metal Buildings Manufacturers Assn., 2130 Keith Bldg., Cleveland 15, Ohio*

\*Additional product information in Sweet's Architectural File



## This floor-ceiling construction resists fire for 3 hours or more

Whenever fire-resistance is a primary requirement . . . the Bethlehem Open-Web Steel Joist construction shown above is hard to beat. It provides fire protection of 3 hours or more, as required for Class A fireproof structures such as stores, schools, hospitals, and apartments.

The top slab is 2½-in. reinforced concrete. Ceiling is a 1-in. layer of gypsum-vermiculite plaster applied on metal lath and proportioned in the range 2:1 to 3:1 gypsum to heat-

expanded vermiculite by weight. Bethlehem Slabform provides an excellent solid steel centering for the slab.

The nearest Bethlehem sales office will be glad to give you full details on both steel joists and Slabform or any other of the many steel products made by Bethlehem for building construction. And, if you wish, one of our engineers will visit you and discuss your building. No obligation, of course.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.  
Export Sales: Bethlehem Steel Export Corporation

# BETHLEHEM STEEL







LAKEVIEW MEMORIAL HOSPITAL, Stillwater, Minn. ARCHITECTS: Elerbe & Company. CONTRACTORS: C. H. Peterson Construction Co.

## Mechanized dish handling simplifies food service at new "cloverleaf" hospital

The first general acute hospital in the United States to use the new "cloverleaf" design, Lakeview Memorial Hospital at Stillwater, Minn., is a marvel of planned functional efficiency.

Three circular wings extend from a rectangular center section. Rooms with 67 beds are at the outer edges of the circles with nurses stations in the centers. Nurses never lose visual contact with patients . . . are never more than 20 feet from them.

Food service, too, is ultra-modern. A STANDARD CONVEYOR Traylift (right) carries trays of food from kitchen to serving areas, carries soiled dishes down again—swiftly, silently and safely.

In the ground floor kitchen a STANDARD CONVEYOR Traybelt (below) simplifies make up of individual food trays and speeds them to the Traylift.

As the modern way to efficient food service, STANDARD CONVEYOR mechanized dish handling systems offer many advantages.

By providing a fast and economical way to transport trays, they let you locate kitchen and dish washing areas remote from dining areas. They allow planning for efficient service with reduced personnel requirements. They provide faster food service with reduced dish breakage. And best of all, they pay for themselves fast out of operational savings.



Standard Traylift makes quick work of carrying soiled dishes down from first-floor serving area (above) to ground-floor dishwashing room (below). Reversible model also allows up-service for food trays from kitchen to patient floor. Other models featuring simultaneous up-and-down service, push-button selection for serving more than two floors, and completely automatic loading and unloading are also available.



Standard Traybelt speeds make up of food trays, carries them safely to the Traylift. Many other models are available to meet a wide variety of food service requirements.



**Standard  
Conveyor  
COMPANY**

312-K Second St., North St. Paul 9, Minn.

LISTED IN SWIFT'S—SECT. 344/ST • SALES AND SERVICE IN OVER 40 CITIES—SEE YOUR YELLOW PAGES.

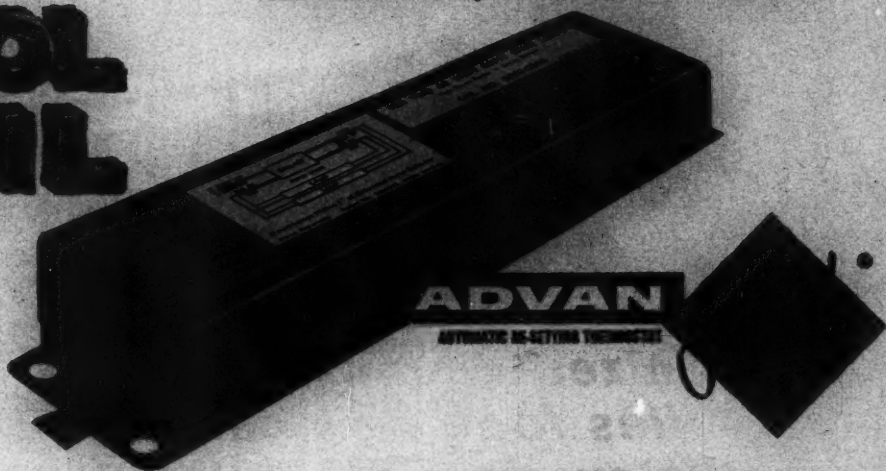
If you have a project pending where you'd like to give your client the benefits of streamlined dish and tray handling, Bulletin 120 can help you to determine models needed and general structural requirements. Write today for your free copy. Or, if you prefer, simply clip this ad to your business letterhead and mail it . . . Your AIA File 35-C-13 is not complete without it!





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KOIL**

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developments give you the . . .**

Through outstanding engineering developments and modern manufacturing facilities, ADVANCE TRANSFORMER COMPANY has become the world's largest manufacturer devoted exclusively to the production of quality fluorescent lamp ballasts. These precision built, power regulating instruments supply exacting amounts of electrical energy for the efficient operation of all fluorescent lamps and are aptly called "THE HEART OF THE LIGHTING INDUSTRY."

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## **LUPTON** aluminum curtain walls create striking patterns in color at Yonkers' new Walt Whitman Junior High School

The bold, imaginative use of colors and patterns . . . in interiors and exteriors . . . is the most dramatic feature of ultra-modern, new, three-story Walt Whitman Junior High School, Yonkers, N.Y.

On two sides of the building, the architect utilized LUPTON Aluminum Curtain Walls . . . their spandrels forming attractive random patterns of several colors.

The Walt Whitman Junior High School illustrates the exciting design possibilities for you inherent in LUPTON Aluminum Curtain Walls. A wide range of colors, windows in various styles, panels of metal or glass allow you unlimited creativity in design. This handsome modern wall construction provides striking visual

effects when used alone or with brick, stone, and other materials.

LUPTON Aluminum Curtain Walls and Windows offer you such dollars-and-cents features as: low initial cost, virtually no maintenance, and effective thermal insulation (two metal skins form a built-in vapor barrier).

Installation is worry-free because LUPTON assures you of accurate fitting and alignment of all component parts. It offers you a single source of responsibility for both the manufacture and the erection of the entire assembly.

See the LUPTON Aluminum Curtain Wall and Window Catalog in Sweet's (sections 3 and 17). Then talk to your local LUPTON man or write to us for details.



Walt Whitman Junior High School, Yonkers, N.Y.; Architect: Eli Rabineau, Yonkers, N.Y.;  
Engineers: Abrams & Moses, New Rochelle, N.Y.

Photograph by S. V. B. Gifford

**OTHER LUPTON  
PRODUCTS THAT MAY  
SOLVE PROBLEMS  
FOR YOU ARE:**



**Double Hung Windows.** LUPTON DH-A2 aluminum double-hung windows are custom built for installation in masonry construction or metal curtain walls. Woven-pile weather-strip and barrel type suspension give smooth operation and weathertight closing.



**Projected Windows.** LUPTON "Master" windows in projected or casement types—used equally well in curtain walls or in masonry construction. Tubular ventilator members for extra rigidity... double weather-stripping, bronze hardware.

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**SCHOOL  
WARDROBES**

*R. C. Church of the Incarnation, Baltimore, N. Y.  
Wm. J. Baugel, Arch.*

**...STORE  
MORE  
IN  
LESS  
SPACE**

Here is a proved way to gain precious classroom space for the primary job of instruction. The FAIRHURST Wardrobe is specifically designed to occupy less room than other types while providing a greater amount of effective storage space.

Only 2' deep, a single wardrobe unit 4' wide accommodates 15 pupils. The secret lies in Fairhurst's patented disappearing door feature: opened, the doors are completely out of the way at the ends of each compartment. These may be fitted with continuous blackboard and chalk rail if desired.

Sturdy pivot arms and center shaft do away with the need for floor tracks or guides. These are so positioned that there is no obstruction when entering or leaving the wardrobe. Closed, the doors project no more than 1½" beyond wardrobe face; while operating, doors extend no more than 8" into aisle space.

Individual Fairhurst Wardrobes have given trouble-free service for upwards of 30 years. For details and free catalog, write Dept. AR—no obligation, of course.

**John T. Fairhurst Co., Inc.**

45 West 45th Street New York 36, N. Y.

STANDARD DETAILS FAIRHURST DISAPPEARING DOOR WARDROBE



## The Record Reports

On the Calendar

October

- 1-6 43rd National Recreation Congress, sponsored by American Recreation Society and National Recreation Association; cooperating agencies: Detroit Dept. of Parks and Recreation, Recreation Association of Michigan, Federation of National Professional Organizations for Recreation; theme: "Recreation in a Mobile America"—Cobo Hall, Detroit
- 5-8 Annual meeting, American Society of Industrial Designers; theme: "Design Explorations"—Santa Catalina Island, Calif.
- 6-15 Second annual decorating show, "Decoration & Design 1962", sponsored by Resources Council of the American Institute of Interior Designers, New York Chapter of A.I.D., *New York Herald Tribune*—Seventh Regiment Armory, New York City
- 7-10 Western Building Industries Exposition, sponsored by Associations of the Western Building Industries Council—Great Western Exhibit Center, Los Angeles
- 9-15 National Electrical Contractors Association—Washington, D.C.
- 9-18 8th Advanced School for Home Builders, co-sponsored by Univ. of Illinois Small Homes Council-Building Research Council and National Association of Home Builders, in cooperation with Division of University Extension—University of Illinois campus, Urbana, Ill.
- 10-12 National Conference on Standards, American Standards Association—Rice Hotel, Houston, Texas
- 10-13 1961 National Planning Conference, Community Planning Association of Canada; theme: "Regional Planning"—Nova Scotian Hotel, Halifax
- 10-14 Annual meeting, American Council of Independent Laboratories, Inc.—Sheraton Hotel, Philadelphia

continued on page 270



The true hand-made character of this exclusive development lends itself to any desired design concept.

The rich, brilliant color is double-burned to withstand the elements for the life of the structure. It is unique . . . and gives wings to imagination.

Black, L-52

Orange, L-65

Dark Red, L-76

Gray Green, L-35

Light Red, L-75

Dark Blue, L-25

Light Blue, L-23

Turquoise, L-21

White, L-10

Yellow, L-85

## A CLAYCRAFT COLORAMICS EXCLUSIVE

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CERAMIC GLAZED BRICK

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PERMITS EXPRESSIVE FREEDOM TO ACHIEVE  
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# CLAYCRAFT

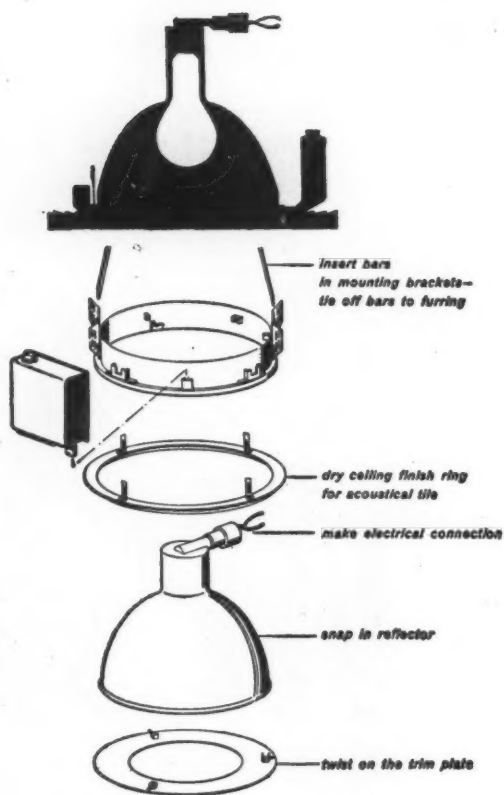
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THE CLAYCRAFT COMPANY

Columbus 16, Ohio

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## INSTALITE®

### Instant Installation

Century's unique die cast aluminum mounting ring and fixture are installed with a snap! Mounting brackets and bars permit instant setting of ring flush with finished ceiling line. This die cast aluminum ring is rustproof and much more rigid than conventional type rings. A complete line of interchangeable fixtures, with no visible hardware, snaps in to standard rings. Installations are rapid. A slip-on auxiliary junction box to meet area code requirements is optional. Century's die cast aluminum mounting rings are shipped with a specially treated insert in the plate position to protect the ring and/or fixture while plastering. For acoustical tile, an additional aluminum trim ring is snapped in.

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AIA 35 p 2

cantilevered sun cornice  
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marquee-canopy  
wall facing  
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## SUN CONTROL and building products

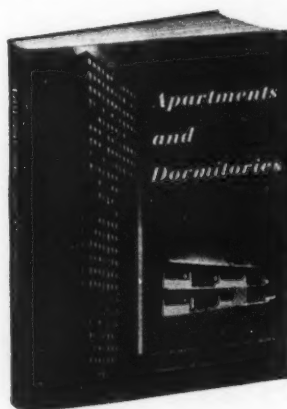
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McKinley aluminum and stainless steel products offer you flexible, usable design elements — functional, effective for sun and weather control. McKinley engineers make their specialized knowledge yours for the asking.

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c. o. McKINLEY co., inc. Indianapolis 5, Ind.

the complete survey of multiple dwellings



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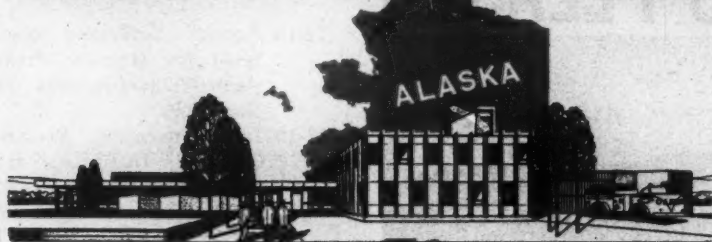
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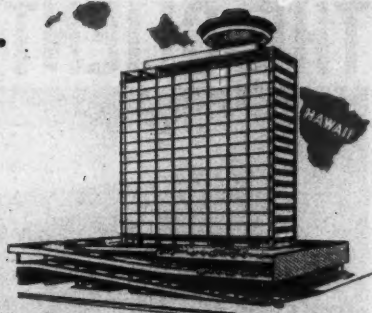
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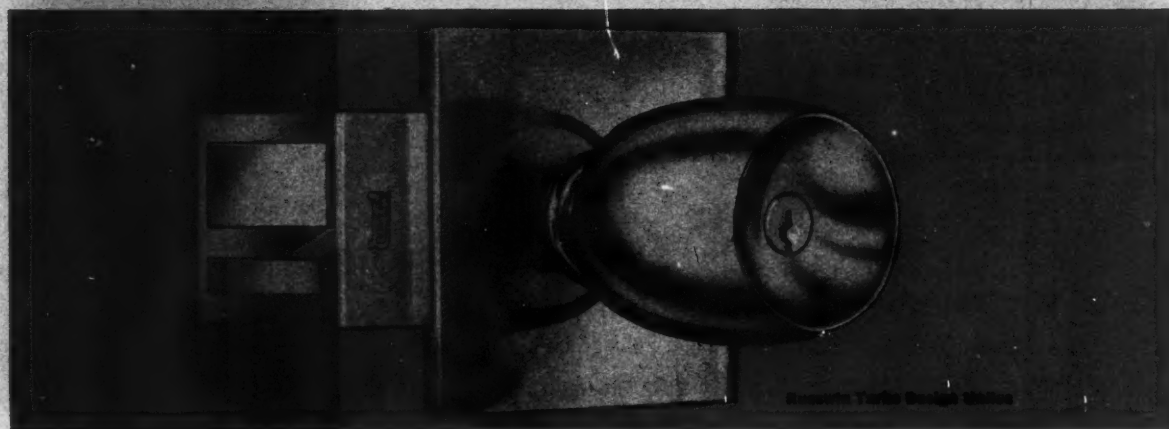
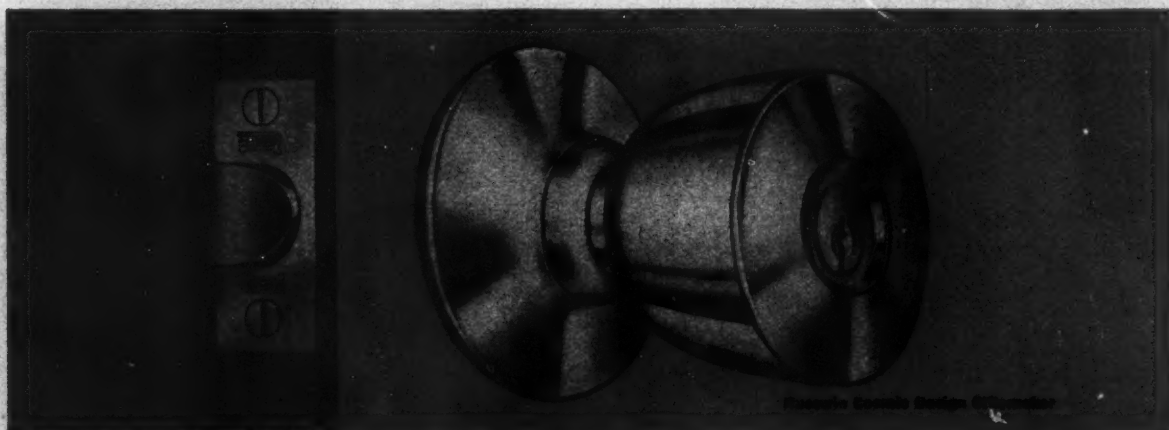
in the two newest states...



Public Safety Bldg., Anchorage  
Architect & Assoc.: Edwin Crittenden, Anchorage, Alaska  
Hardware: Glass, Sash & Door Supply Co.,  
Anchorage, Alaska



The Ala Moana Building, Honolulu  
Architect: John Graham & Co., Seattle and New York  
Hardware: Theo. H. Davies & Co., Ltd., Honolulu, Hawaii  
Owner-Contractor: Hawaiian Land Company, Ltd., Honolulu



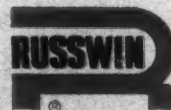
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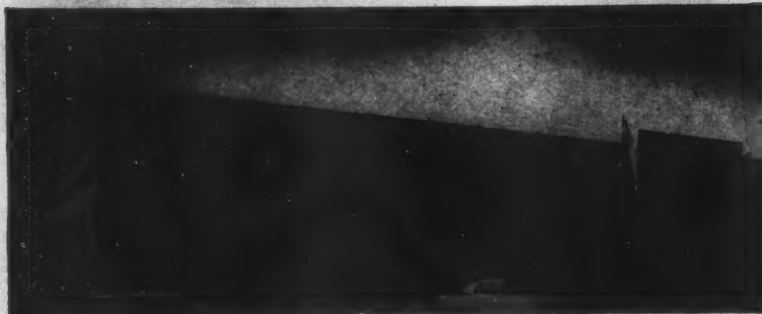
age Public Safety Building, Russwin's popular Stilemaker Heavy Duty Cylindrical Locks, Cosmic Design, are used.

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steel service doors  
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pyramex® counter doors  
steel grilles

Brooklyn 22, N. Y.

## The Record Reports *continued from page 266*

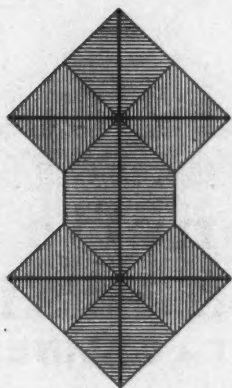
- 12-16 Annual conference, National Trust for Historic Preservation—Waldorf-Astoria Hotel, New York
- 15-19 1961 convention, Prestressed Concrete Institute; theme: "New Opportunities in Structural Design"—Cosmopolitan and Brown Palace Hotels, Denver
- 15-20 Fall General Meeting, American Institute of Electrical Engineers—Statler-Hilton Hotel, Detroit
- 16-20 Annual convention, American Society of Civil Engineers; theme: "Metropolis-1980"—Hotel Statler Hilton, New York
- 16-20 1961 National Safety Congress, annual convention of the National Safety Council—Chicago
- 17-18 American Society of Mechanical Engineers Materials Handling Conference—Pick Nicolette Hotel, Minneapolis
- 19-21 Joint Fall Meeting of the Virginia Chapter, American Institute of Architects and the Virginia Chapter, Virginia Society of Professional Engineers and the National Chapter of the National Society of Professional Engineers, who are holding their National Directors Meeting; theme: "Education for Engineers and Architects to Meet Today's Needs"—Hotel Roanoke, Roanoke, Va.
- 23-27 National Metal Exposition—Detroit
- 28 First National Symposium, Industrial Designers Institute; theme: "The Pivoting Forces"—Somerset Hotel, Boston
- 29ff 28th National Conference, National Association of Housing and Redevelopment Officials; through Nov. 1—Sheraton-Park Hotel, Washington, D.C.

## November

- 1-3 14th regional meeting, American Concrete Institute—Dinkler-Tutweiler Hotel, Birmingham, Ala.

*continued on page 276*





## STARS OF TERNE ...

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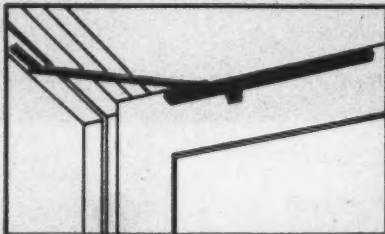
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Halifax, Nova Scotia  
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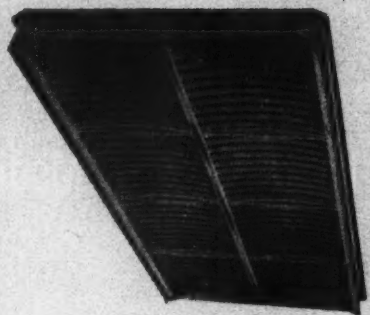


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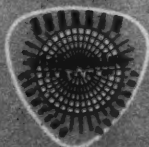


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...of Modine's work is a series of photographs that are both striking and mysterious. The images are dark and grainy, with a high-contrast, almost noir-like quality. They depict a person, likely a woman, in various poses and settings. The lighting is dramatic, with strong highlights and deep shadows, creating a moody and mysterious atmosphere. The person's face is partially obscured by shadows, and their hands are visible, holding what appears to be a long, thin object, possibly a book or a piece of fabric, which is also illuminated by the light source.



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immediately provides a safe working platform; it requires no curing time.

Fast, all-weather construction is just one advantage of steel roof deck. Others are detailed in specific product catalogs available upon request to any member company of the Metal Roof Deck Technical Institute.



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Airtherm Manufacturing Co., St. Louis 10, Mo. • Bowman Steel Corporation, Pittsburgh 30, Pa. • Caco Steel Products Corporation, Chicago 50, Ill. • Fenestra Incorporated, Detroit 11, Mich. • Grance Steel Products Company, Granite City, Ill. • Inland Steel Products Company, Milwaukee 1, Wis. • Macomber Incorporated, Canton 1, Ohio • The R. C. Mahon Company, Detroit 34, Mich. • Plastel Products Corporation, Washington, Pa. • Republic Steel Corporation, Truscon Division, Youngstown 1, Ohio • H. H. Robertson Company, Pittsburgh 22, Pa. • Southwest Steel Products, Houston 7, Texas • United States Gypsum Company, Chicago 6, Ill. • Wheeling Corrugating Company, Wheeling, W. Va.

## The Record Reports

*continued from page 270*

- 4-7 National Retail Lumber Dealers Association Eighth Annual Building Materials Exposition—McCormick Place Exhibit Hall, Chicago
- 6-8 Annual convention, Structural Clay Products Institute; theme: Industry Research—Shoreham Hotel, Washington, D.C.
- 6-9 46th edition, National Hotel Exposition—The Colliseum, New York
- 6-9 1961 conference and Atom Fair exhibit, sponsored by Atomic Industrial Forum and American Nuclear Society—Conrad Hilton, Chicago
- 6-10 Annual convention, National Warm Air Heating and Air Conditioning Association—La Salle Hotel, Chicago
- 12-15 Annual meeting, Air-Conditioning and Refrigeration Institute—The Homestead, Hot Springs, Va.
- 14-16 Building Research Institute 1961 Fall Conferences—Shoreham Hotel, Washington, D.C.
- 15-18 1961 Joint Convention, Gulf States Regional A.I.A. and Louisiana Architects Association, A.I.A.—Capitol House Hotel, Baton Rouge, La.
- 20th American Society of Mechanical Engineers Winter Annual Meeting; through Dec. 1—Statler Hilton Hotel, New York
- 21st Exhibition, Stained Glass Windows by Chagall designed for a synagogue at the new Hadassah-Hebrew University Medical Center near Jerusalem, shown under the sponsorship of Hadassah; through Jan. 7, 1962—Museum of Modern Art, New York City
- 28-30 Building Research Institute 1961 Fall Conferences—Mayflower Hotel, Washington, D.C.

### December

- 3-7 18th annual National Association of Home Builders Convention-Exposition — McCormick Place, Chicago
- 5-7 Building Research Institute 1961 Fall Conferences—Shoreham Hotel, Washington, D.C.

*continued on page 282*





### **Pattern For People**

To the static viewer, pattern, texture, and intimacy of scale are felt even when they are not recognized. In the doctor's clinic by architect Paul Hayden Kirk, the result at the lowest measure of recognition is a pleasing environment. At its highest, it is an awareness of art. The means to both: a skilled architect, a timeless building material.

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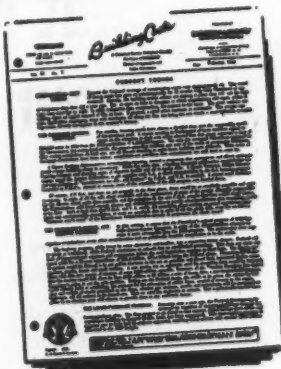
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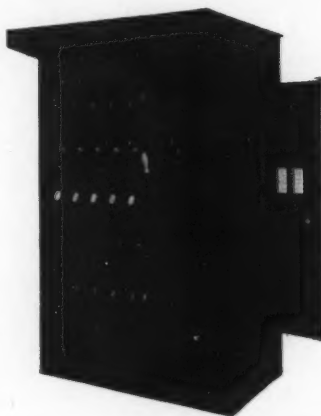
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\*TRADEMARK





Health Science Research Building, Birmingham, Alabama. Architects: Davis, Speake, & Thrasher, Birmingham. Painting Contractor: Vulcan Painters, Birmingham.

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DEVOE joins  
your staff,  
but not  
your payroll!**



Ottis W. Airhart, our  
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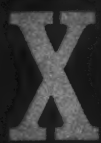
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A large, dark, stylized letter 'X' is centered in the upper half of the image. The background is a light, textured surface, possibly paper or fabric, with some vertical creases and a small tear at the top center. The 'X' is dark and has a slightly irregular, hand-drawn appearance.

# **<sup>the</sup> Inside Story**

of fireproofing building X



*The principal characters shall remain anonymous because we don't want to get anyone in trouble... especially ourselves*

On the 20-plus story X building in the city of A, the architect had specified either Type B spray-on fireproofing, or Zonolite Mono-Kote.

The general contractor, for mysterious reasons of his own, informed the plastering contractor to use the Type B spray-on fireproofing. So the plastering contractor, eager to oblige, ordered over 1,000 bags of Type B, and his men dutifully began to spray it on.

Now, be it understood that Type B is a respectable product, manufactured by one of the giants in the field, scientifically tested and all that. You read all the time about how good it is.

Except that the nozzle men spraying the stuff on didn't think so. Type B didn't stick to the lower edge of the beam flanges. It was hard to build up even to  $\frac{1}{4}$ " on the first pass. And there was so much rebound and splatter that the nozzle men were getting coated as well as the beams.

When the nozzle men threatened to quit, the plastering contractor decided to try Mono-Kote, though the general contractor tried to dissuade him (verbally; no firearms). But his argument failed.

The nozzle men found that on the first pass, they could apply Mono-Kote at least  $\frac{1}{4}$ " thick to the beams, and a full  $\frac{1}{4}$ " thick to the contour floor.

Within two hours, Mono-Kote was so firmly set that the nozzle men could come back for the second (and final) pass to build the coat out to  $1\frac{1}{4}$ ", for a five hour rating. The floor received a 1" coat for a three hour rating. A fast, clean, economical job.

The story has all sorts of happy endings. The plastering contractor was happy because he did a good job fast. The general contractor was mollified (sort of) because the work waiting for the fireproofers to finish was able to begin sooner than he had planned. Even the nozzle men were happy... they stayed clean, not coated, working with Mono-Kote.

In many advertisements they are willing to give you the names on request if you write in. Not us. Not even if you say please. No names mean no trouble.

Story's over; now for a few more facts. Aside from the speed and excellent application characteristics of Mono-Kote, you use less material; 1" for a three hour fire rating,  $1\frac{1}{4}$ " for a five hour rating.

On your next job, specify what you will or Zonolite Mono-Kote. We'll be happy to take on all comers. For complete information about Mono-Kote, write for Bulletin PA-53, to:

**ZONOLITE COMPANY**

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## The Record Reports

continued from page 276

### Office Notes

#### Offices Opened

W. E. Green has opened an office for the general practice of architecture at 130 W. Liberty Drive, Wheaton, Ill.

James P. Hawke, internationally known consulting structural engineer, has opened a consulting engineering office at 503 Market St., San Francisco.

#### New Firms, Firm Changes

John A. Bower Jr. and Frederick M. Fradley announce the formation of a partnership for the practice of architecture as Bower and Fradley Architects, 114 West Coulter St., Philadelphia.

The partnership of Pohlman & Chapelsky Architects has been formed by Lauren V. Pohlman and Roman N. Chapelsky. The address is 1140 E. Jersey St., Elizabeth, N.J.

Robert K. Moss, engineer, announces the formation of a new consulting organization to be known as Robert K. Moss, Consultants, 2252 Dehne Rd., Northbrook, Ill.

Roland D. Thompson, formerly in partnership with Henry Steinhardt, announces the relocation of his architectural office to 33 E. 61st St., New York 21, N.Y.

C. Herbert Paseur is now a full partner in the Houston architectural firm of Caudill, Rowlett and Scott. New associates in that firm are: James R. Cox, Louis E. Finlay, Philip C. Williams, Donald B. Wines, William W. Harper and W. C. Bonvillain.

William R. Funk, administrator of the Mechanical Contractors Industry Advancement Program of Greater Philadelphia, Pa., announces the appointment of John R. Watson to the staff. Mr. Watson, an engineer, will promote closer cooperation and relationships between architects and engineers.

Alexander E. Hoyle has retired from the Boston architectural firm of Hoyle, Doran and Berry (formerly Cram and Ferguson). New members of the firm are: Nisso T. Aladjem, Frank E. DeBruyn, Robert W. Hadley and Charles P. Harris.

Richard O. Stanley, architect, has established a new firm with offices at 31 Exchange St., Lynn, Mass.

William E. Cox has been appointed to the architectural design staff of The Ballinger Company, Architects & Engineers, 1625 Race St., Philadelphia.

Henry Van Loon, who was Executive Director of the Pennsylvania State Planning Board, has joined the architectural firm of Perkins & Will. To participate in the firm's urban design practice, Mr. Van Loon will be based in the White Plains, N.Y. office.

#### New Addresses

Richard J. Chorlton, Architect, 188 Nassau St., Princeton, N.J.

Erroll R. Clark, Architect, 13726 W. Warren Ave. Dearborn, Dearborn, Mich.

Henneberg & Henneberg, Architects and City Planners, 806 Massachusetts Ave., Cambridge 39, Mass.

Morton T. Ironmonger—A.I.A., 106 Oak Park Bldg., 2631 E. Oakland

continued on page 282



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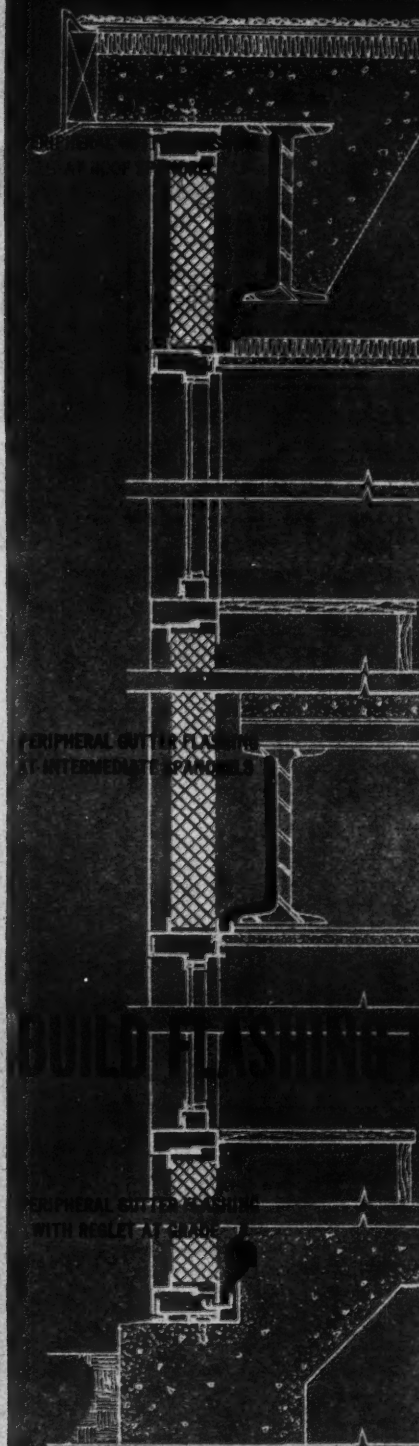
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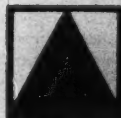


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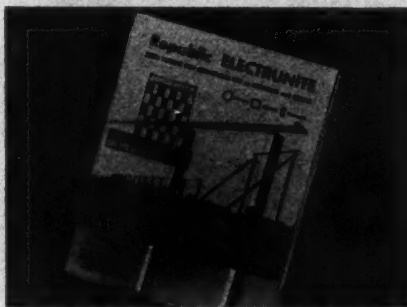


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## The Record Reports

continued from page 282

Park Blvd., Fort Lauderdale, Fla.

Ratcliff-Slama-Cadwalader Architects, 3408 Grove St., Berkeley 3, Calif. and 6117 Grove St., Oakland 9, Calif.

Allen J. Wright Associates, Civil Structural Engineers, 11212 Grandview Ave., Wheaton, Md.

### I.E.S. Awards Gold Medal, Elects Fellows

The Gold Medal Award for 1961 of the Illuminating Engineering Soci-

ety has been given to Dr. Deane B. Judd, "the outstanding authority in the field of color in the United States and probably in the world."

The I.E.S., an organization of more than 10,000 members, awards its Gold Medal "for the purpose of giving recognition to meritorious achievement which has conspicuously furthered the profession, art or knowledge of illuminating engineering."

According to A. D. Hinckley, managing director of the world-wide So-

ciety, "The importance of the part played by color in illuminating engineering has only in recent years begun to receive the recognition it deserves."

Dr. Judd, who has been a physicist at the National Bureau of Standards since 1922, has made major contributions in the following broad areas: the "standard" observer for colorimetry and photometry; light scattering properties of materials, color-blindness, indices of whiteness, uniform color scales, color names, color differences and color tolerances, and chromatic adaptation.

Eight members of the I.E.S. have been elevated to the rank of Fellow, an honor which recognizes stature in the profession and contributions to the program of illuminating engineering. They are: H. E. D'Andrade, architects' and engineers' adviser, Large Lamp Department, General Electric Company, New York, N.Y.; Grant E. Davidson, supervising illumination engineer, Ontario Hydro-Electric Power Commission, Toronto, Ont., Canada; Arthur A. Eastman, visual research engineer, Radiant Energy Effects Laboratory, Lamp Division, General Electric Company, Cleveland; George E. Inman, retired, formerly manager, Advance Discharge Lamp Engineering, Large Lamp Department, General Electric Company, Cleveland; Merle E. Keck, manager, Outdoor Lighting Engineering Section, Engineering Department, Westinghouse Electric Corp., Cleveland; Herbert A. Kliegl, president, Kliegl Brothers Universal Electric Stage Lighting Company, New York; Karl A. Staley, specialist, Personnel and Sales Training, Large Lamp Department, General Electric Company, Cleveland; and Arthur W. Weeks, engineer in charge of fluorescent testing, Champion Lamp Works, Lynn, Mass.

### Lloyd Warren Fellowship Winners Announced

Winners of the Lloyd Warren Fellowship, Paris Prize in Architecture, are: Alan B. Glass, Oklahoma State University—first prize of \$5000; and Sidney R. Barrett, Georgia Institute of Technology—second prize of \$3500. Both sailed in September

continued on page 290



one of four lanes of employees' cafeteria

kitchen of executives' dining room

Architects: Harry Hake and Harry Hake Jr. and Associates

## Van has continuously served Western & Southern for 45 years!

You will find unusual measure of Van's ability to help you with your food service equipment problems in this story of nearly a half century of kitchen engineering and equipment manufacture for one of the large life insurance companies. Our general sales manager . . . Dave Wayman . . . has been Van's kitchen engineer on this account for over 25 years!

Evidence of the benefits of Van collaboration with you and your architect: Van installed two service counters for 1500 lunches in 1958 so that when the new building was erected in 1961 two more counters were integrated to serve 3000 lunches daily . . . and the kitchen expanded to accommodate. As the illustrations show, here is shining stainless equipment, enduring and sanitary.

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Cincinnati 2, Ohio.



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**570 BROAD STREET BUILDING**  
**Newark, New Jersey**

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 Frank Grad & Sons  
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 Mutual Benefit Life Insurance Co.  
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**GENERAL CONTRACTOR**  
 Wm. L. Blanchard Co.  
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**LEASING & MANAGING AGENT**  
 Peter F. Pasbjerg & Co., Inc.  
 Newark, New Jersey



EVERYTHING ABOUT  
 THIS NEW  
 OFFICE BUILDING  
 WILL BE BREATHTAKING

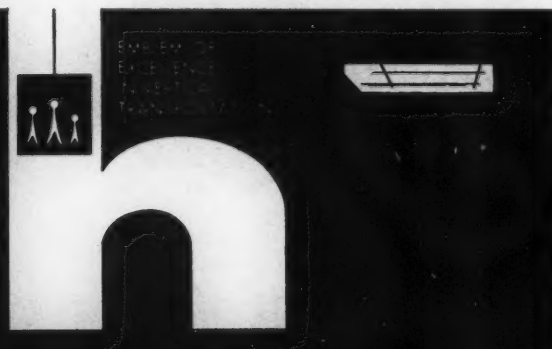
...EXCEPT  
 THE ELEVATORS!

# Haughton **DYNAFLITE** Control

will provide fastest floor-to-floor time with *complete* comfort!

This is the 570 Broad Street Office Building, Newark, New Jersey. Now under construction, its 14 floors will be served by four Haughton Operatorless Elevators with totally new *Dynaflite* control. With this control, floor-to-floor time can be incredibly fast, because starts and stops are so precisely controlled every time, and are so gentle that passengers scarcely feel any motion at all. Thus Dynaflite combines speed and comfort to provide unmatched efficiency and passen-

ger well-being . . . and enhance building prestige and rentability. Haughton Dynaflite control is ready to serve your buildings today, thanks to Elevonics\* . . . the new technology in vertical transportation that has created new standards for excellence in elevator performance. Include Dynaflite's distinctive advantages in your building or modernization plans. Ask your Haughton representative for complete details, or write us, without obligation.



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will anticipate in advance the varied traffic conditions encountered in the 570 Broad Street Building. An "electronic brain" will automatically dispatch cars at proper

times, in the proper sequence . . . avoiding the congestion of "rush hours" and "coffee breaks." This type of predetermined service can work wonders in your installation.

\*Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Reg. in U. S. Pat. Off.

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New floor system combines  
mechanical and electrical services

# GRANCO A-E FLOOR

Design Flexibility • Increased Capacity • Ease of Installation

## FOR ANY STRUCTURAL SYSTEM

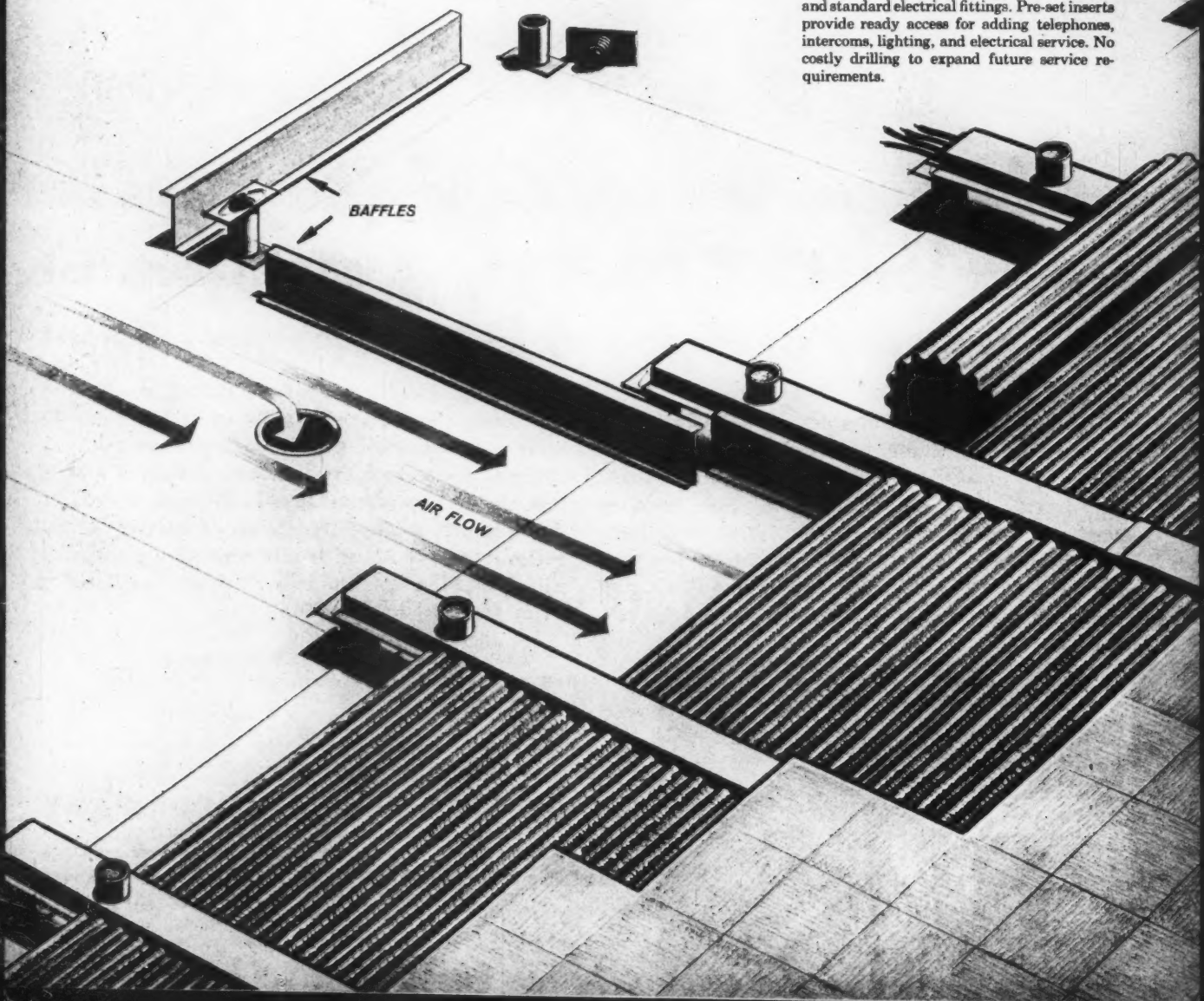
A-E (Air-Electric) floor system fits any type construction—remodeling as well as new. Eliminates most horizontal air ducts. Reduces height between floors. Mechanical and electrical services can easily be expanded to meet future requirements.

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## ELECTRICAL FLEXIBILITY

Conventional header ducts feed large capacity cells that carry wiring to pre-set inserts and standard electrical fittings. Pre-set inserts provide ready access for adding telephones, intercoms, lighting, and electrical service. No costly drilling to expand future service requirements.







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## A-E FLOOR

a floor system providing air and electrical distribution

## GRANCO



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JOINTS • FREE FLOW SUBDRAIN





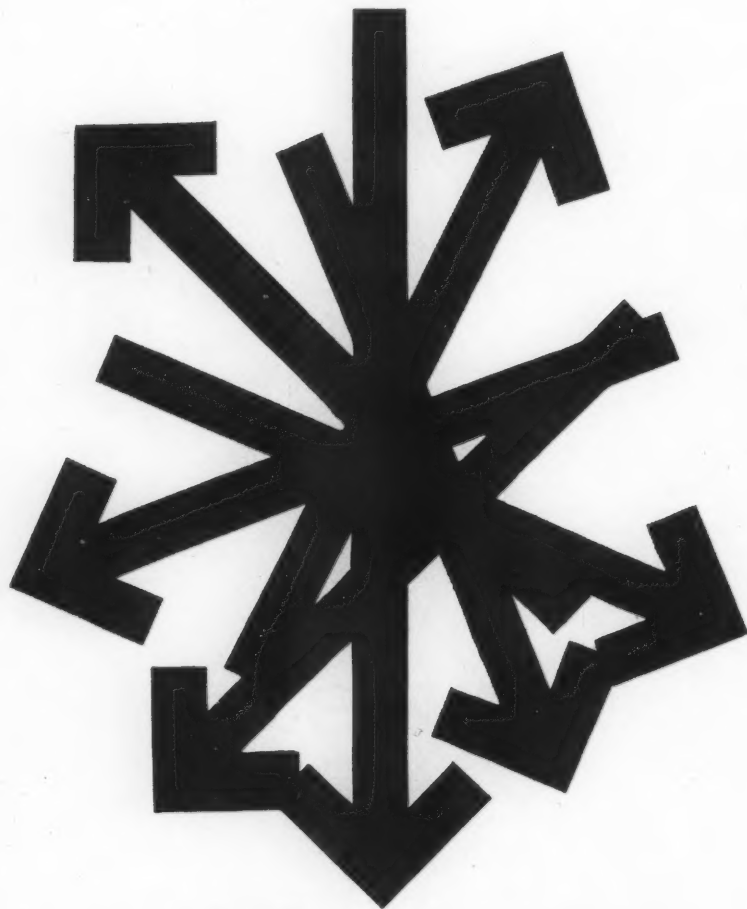
to pursue their studies abroad. Mr. Glass will stay one year, Mr. Barrett eight months.

Awarded by national competition, the fellowship is administered by the National Institute for Architectural Education and has been given since 1904 with the exception of the war years. The competition this year consisted of a preliminary competition executed in three days from

which those to compete in the final competition were selected. The problem for the preliminary called for the design of "A Center for New Countries Adjacent to the U.N." The second part of the competition required the solution in five consecutive weeks to a problem the subject of which was "A U.N. Delegation Headquarters" for the African countries.

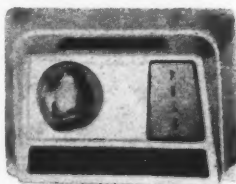
Members of the jury were: Caleb Hornbostel, chairman, Arnold A. Arbeit, George Beiers, Giorgio Cavaglieri, Charles Colbert, Joseph Judge, Sidney L. Katz, L. Bancel LaFarge, Gillet Lefferts Jr., John C. B. Moore, Hugh N. Romney, Charles Rieger and Kenneth Underwood.

The third prize of \$250 in the final competition was awarded to Morton Gruber, a student at Massachusetts Institute of Technology. Regional prizes of \$100 each were awarded to students at Agricultural & Mechanical College of Texas, Iowa State University, North Carolina State College and the University of Illinois.



### **SANI-DRI** key to automation in today's heavy-duty washrooms

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**CHICAGO HARDWARE FOUNDRY CO.,** North Chicago, Ill.

### **Brunner Scholarship Available**

Applications are being accepted for one of the nation's top architectural awards, the \$5000 Arnold W. Brunner Scholarship. The Scholarship, sponsored annually by the New York Chapter of the American Institute of Architects, is open to American architects who have advanced professional background. Each candidate may choose his subject of study in some special field of architectural investigation which will contribute effectively to the practice, teaching or knowledge of the profession.

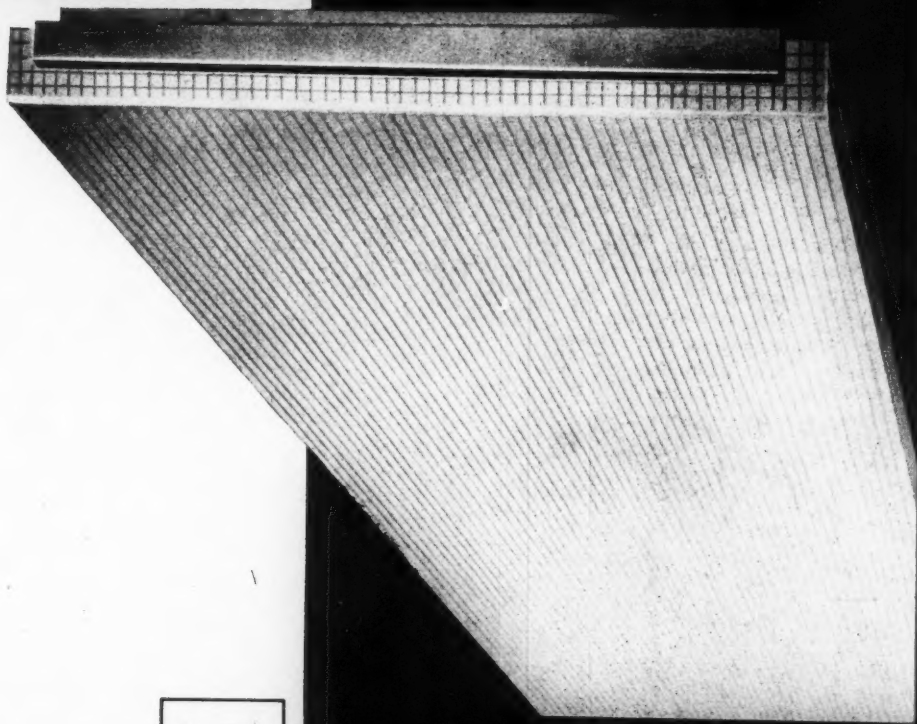
As part of his application, the candidate is required to submit his choice of subject with an outline of his proposed studies, research and necessary travel. Under normal conditions the Scholarship must be completed within one year from the date of the grant.

Past projects for which the Scholarship has been awarded include: a study of urban living through the movement of people, the creation of a traveling architectural exhibit for high school students, the compilation of a guide to contemporary architecture of Europe and a history of city planning. Architects Richard A. Miller and Arnall T. Connell won the most recent grant for their proposed study of visual perception as it is related to design.

For application blanks and further information, write the New York Chapter, A.I.A., 115 East 40th St., New York 16, N.Y. Jan. 15 is the deadline for submitting applications.

more news on page 298





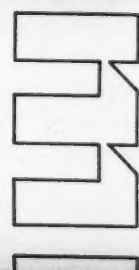
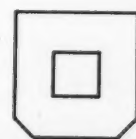
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Smithcraft

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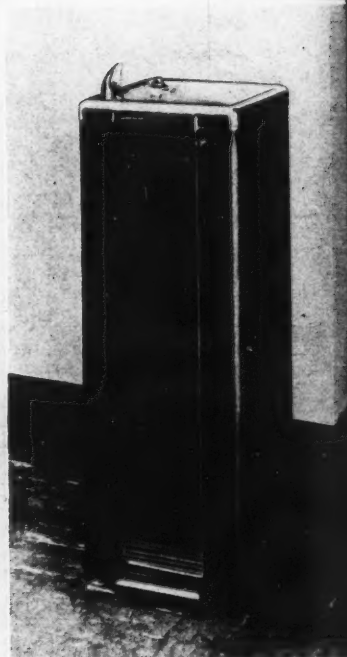
DOMINO







The old Equitable Life Building at 393 Seventh Avenue



## AFTER 12 YEARS OF SATISFIED SERVICE...

One of the most beautifully designed office buildings on the New York skyline, the new Equitable Life Building, is furnished with the most handsome and functional office furniture available. And to complement its architectural excellence, 130 new Westinghouse WALL LINE Wall Hung Water Coolers are installed.

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The new Equitable Life Building at 1285 Avenue of the Americas

## EQUITABLE AGAIN CHOOSES WESTINGHOUSE



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*Atlantic Coast Line Building, Jacksonville, Fla.  
Architects: Kemp, Bunch & Jackson  
Photographers: DuPont Plaza Photographers*

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# DIVIDEND ENGINEERING

FOR A NEW AIR-CONDITIONED HIGH SCHOOL: \$13,950 SAVING ON EQUIPMENT; \$1,836 FORECAST SAVINGS IN YEARLY OPERATING COSTS

## DIVIDEND ENGINEERING DOLLAR-SAVING PROPOSAL

### Cost of Heating

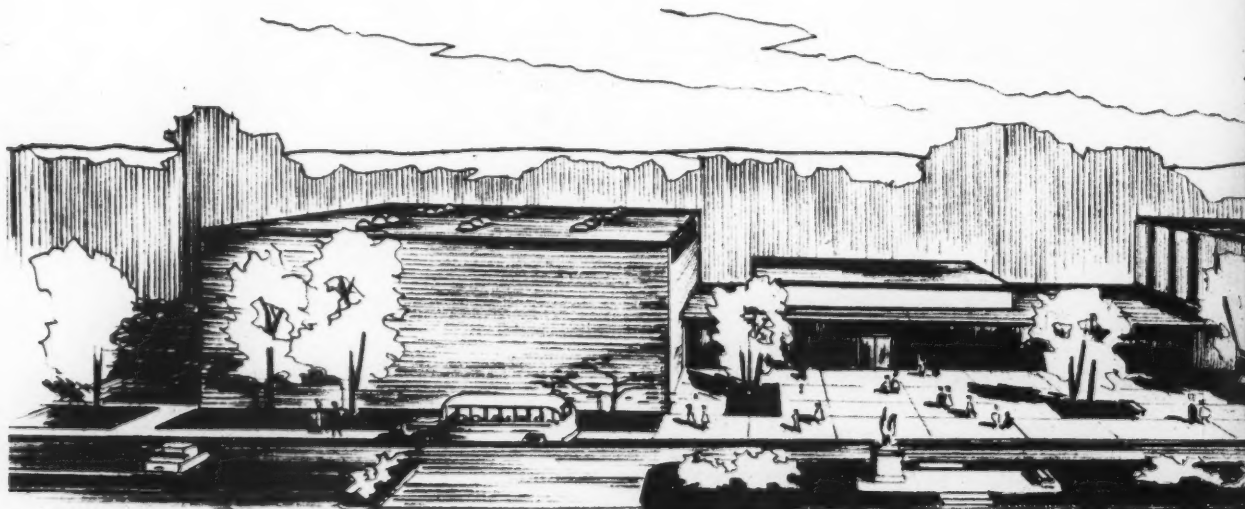
#### & Cooling Equipment

Original Specifications .....	\$20,700
Dividend Engineering Specifications .....	\$ 6,750
Predicted Savings .....	\$13,950
Additional Glass & Insulation Cost (in place) .....	\$ 8,640
Net Initial Savings .....	\$ 5,310

### Projected Annual

#### Operating Costs

Original Specifications .....	\$16,301
Dividend Engineering Specifications .....	\$14,465
Annual Savings .....	\$ 1,836



MAPLE PARK JUNIOR HIGH SCHOOL, North Kansas City School District, Kansas City, Mo., Dr. Ruie B. Doolin, Superintendent  
Architects: Kivett & Myers & McCallum. Mechanical Engineer: W. L. Cassell.



## AN \$8,640 ADDITIONAL INVESTMENT WILL BRING THESE SAVINGS:

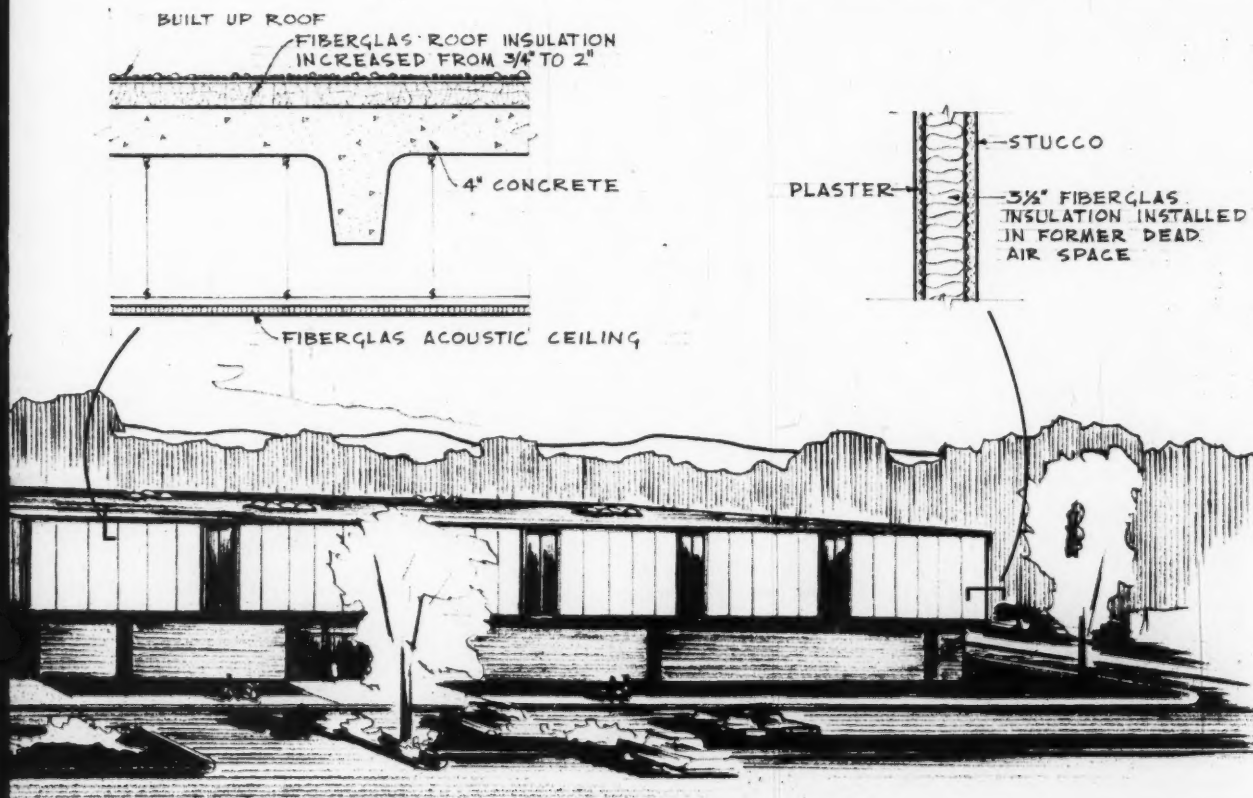
### \$13,950 ON HEATING-COOLING EQUIPMENT

The cost of construction for this air-conditioned school had to be \$13 per sq. ft., or less. Original specifications called for  $\frac{3}{4}$ " of Fiberglas\* Roof Insulation, a  $3\frac{1}{2}$ " air space in the exterior walls, and plate glass windows. A Dividend Engineering analysis showed that increasing the roof insulation to 2", filling the walls with Fiberglas Building Insulation, and using heat reducing plate glass would produce optimum heat savings. The added efficiency, obtained at a cost of \$8,640, should reduce the cost of the heating-cooling equipment by \$13,950 . . . a net saving of \$5,310 in the budget.

### \$1,836 FORECAST SAVINGS IN ANNUAL OPERATING COSTS

Dividend Engineering calculations also forecast a \$1,836 saving in the cost of heating and cooling. Without this evaluation to point out the "thermo-economic" performance of the building, over \$1,800 would be spent unnecessarily each year.

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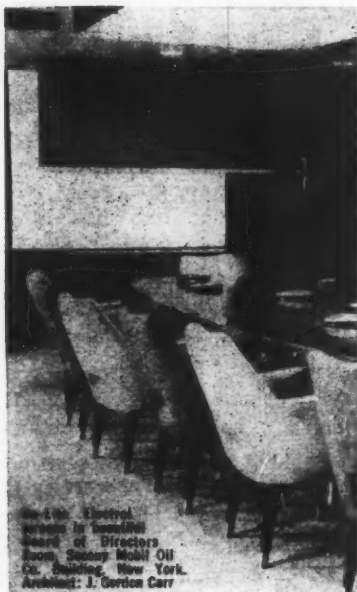


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OWENS-CORNING  
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## A-V Aware Architects Choose Da-Lite Screens

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Since 1909  
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Warsaw, Indiana

## The Record Reports *continued from page 290*

### Preservation Trust Meets; Two Exhibits Planned

Coinciding with the annual meeting in New York October 12-16 of the National Trust for Historic Preservation is the opening of two related exhibitions presented during October and November by the Cooper Union Museum for the Arts of Decoration in New York City.

One of the exhibitions, sponsored and prepared by the National Trust, is entitled "Preservation: the Heritage of Progress". It will consist of 40 photographic panels showing how many historic monuments have been preserved or restored and also illustrating neglect or destruction of others. After its initial showing at the Cooper Union Museum through Nov. 17, the exhibit will be circulated throughout the country under the sponsorship of the American Federation of Arts.

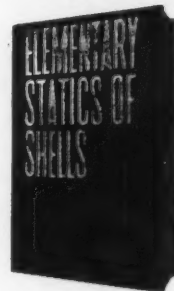
The second exhibition, prepared by the Cooper Union Museum staff, will illustrate in depth both the interior and exterior aspects of historic restoration. Entitled "Method and Style in Restoration," the exhibit will be divided into three sections: the first devoted to archaeological research; the second containing rare documents and a variety of objects showing how dates and styles can be verified in restoration projects; and the third illustrating the variety of styles in interior furnishings from which the restorer can choose to reflect a given historical period.

### Cincinnati U. Appoints New Staff Member

John R. Hagely has been appointed assistant professor of architecture in the University of Cincinnati's College of Applied Arts.

Having received his Bachelor of Architecture degree from Ohio State University in 1953 and served on the faculty of Ohio State as an instructor in architectural construction from 1955 through 1960, Mr. Hagely completed his Master of Architectural Design degree at the University of Illinois in 1961. He has worked in the fields of architectural design and contract drawing for architectural firms in Columbus, Ohio.

## Now available for the first time in English ELEMENTARY STATICS OF SHELLS Second Edition



by Alf Pflüger

Translated by Ervin Galantay

Here is a simple and methodical introduction to shell design. Newly translated, this compact work is designed to meet the urgent demands of practicing engineers and architects.

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The lasting qualities of granite coupled with the beauty of the material . . . perman-

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Truly, granite *is* the material that makes a building "A Building To Remember".

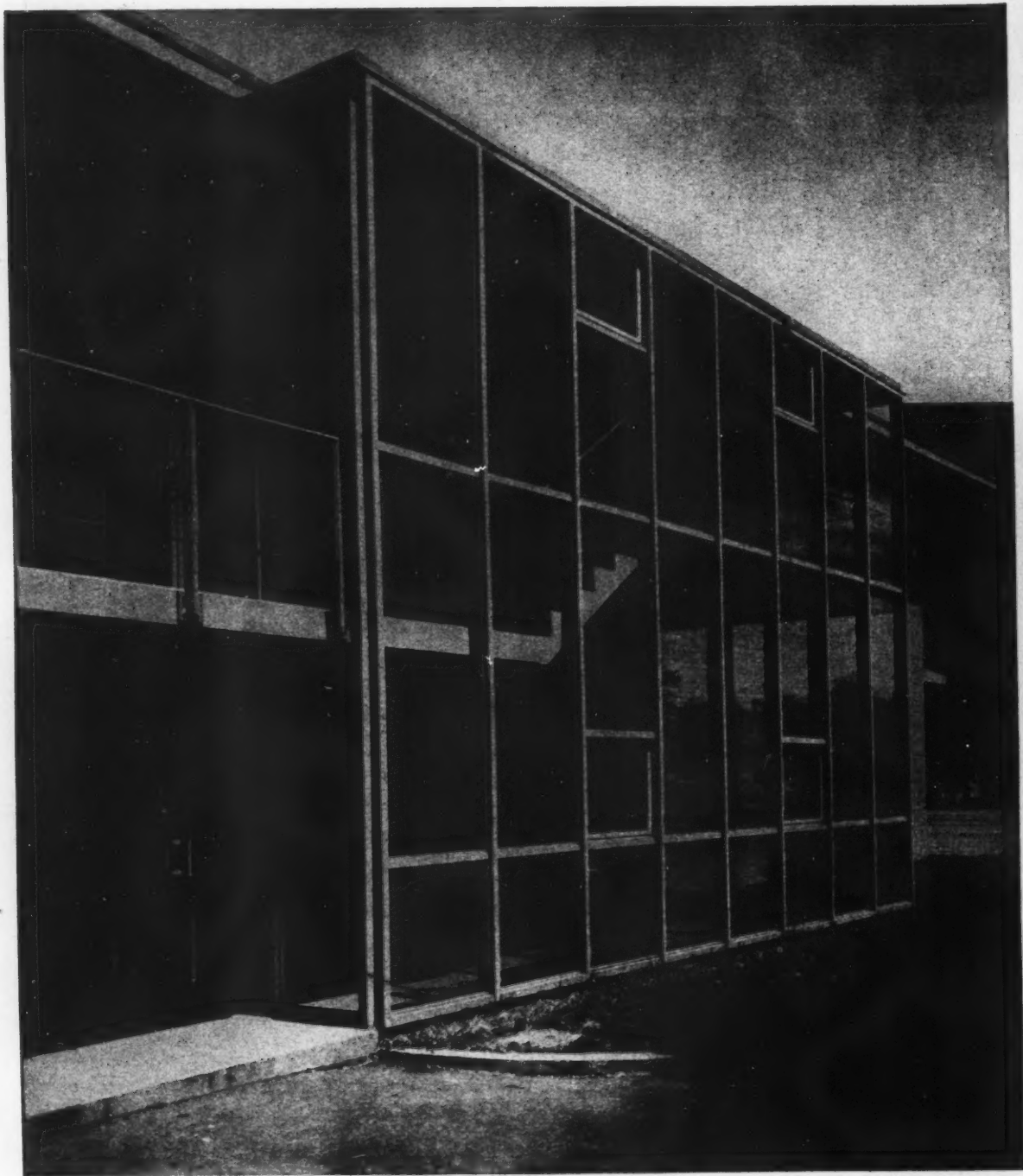
MOISANT INTERNATIONAL AIRPORT  
New Orleans, La.

Architects: Goldstein, Parham & LaBouisse, Herbert A.  
Benson—George I. Riehl  
General Contractor: Dixie Construction Company,  
Birmingham, Alabama  
Granite: Kershaw for Column Facing and Entrances

## GEORGIA GRANITE FOR BUILDINGS TO REMEMBER

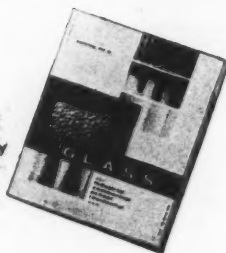
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elberton, georgia





Stairwell of Polished Misco Wire Glass contributes to overall appearance as well as safety in the Fort Saunders Elementary School, Knoxville, Tenn.  
 Architect—Painter, Weeks & McCarty, Knoxville, Tenn.

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WORLD'S LARGEST



Impact and fire resistance are twin features of this Polished Misco Wire Glass Installation in Tennessee School for the Deaf, Knoxville, Tenn. Architect—Painter, Weeks & McCarty, Knoxville, Tenn.



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*Daylighting*

WITH SAFETY

Combining beauty, utility, and economy, Mississippi leads the way by making available an extensive selection of translucent glass patterns that do wonderful things with daylight. In addition, rugged Mississippi Wire Glass, whether for obscurity or clear vision, affords effective but inconspicuous fire protection while enhancing the appearance of any structure... when installed in partitions, skylights, stairwells, windows, doors, or wherever else fire and breakage protection is required. The versatility of Mississippi glass provides architects and engineers with a practical solution to virtually every daylighting problem, including safety with decoration, with heat absorption and with light diffusion and direction.



Polished Misco Wire Glass glazed in main entrance of Hellertown High School, Hellertown, Pa. Architect—Hayl, Bond & Miller, Allentown, Pa. Contractor—Gottlieb-Schneider, Bethlehem, Pa. Glazing Contractor—Penn Allen Glass Company, Allentown, Pa.

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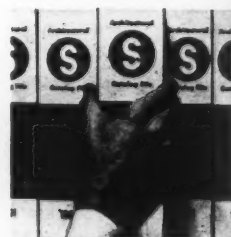




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# Ludowici Crowns a Princess



The Princess Kaiulani Hotel Shop Building in Honolulu was given a regal roofing treatment with Ludowici-Celadon interlocking tiles. Interlocking tiles, as all other patterns, will not fade or discolor; will adapt to any architectural design and last the life of the building.

## PRINCESS KAIULANI

Hotel Shop Building  
Honolulu, Hawaii

## ARCHITECT:

Gardner A. Dailey, F. A. I. A.  
San Francisco, Calif.

## ROOFING TILE:

Ludowici Weathered Black Interlocking

WEST COAST REPRESENTATIVES Gladding, McBean & Co., Los Angeles, San Francisco,

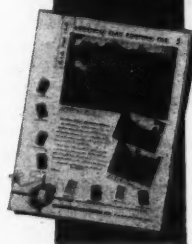
HAWAII REPRESENTATIVES Lowers & Cooke, Ltd., Honolulu

LUDOWICI-CELADON tiles offer complete flexibility of design. Any shape, form, style or color roof is possible. Standard and special shapes include weathered, smooth or textured surfaces. Color is limited only to your imagination. The most popular colors are: Buff, Red, Black, Green, Brown, Coral, White and Blue.

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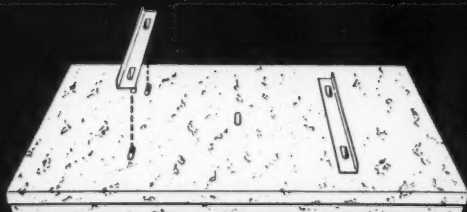


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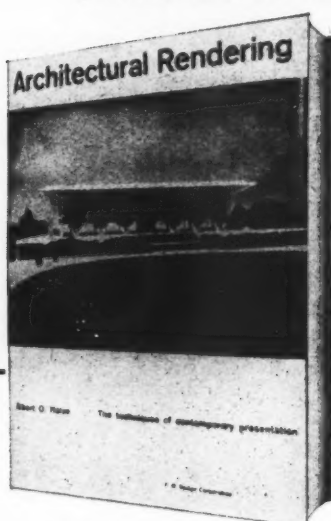
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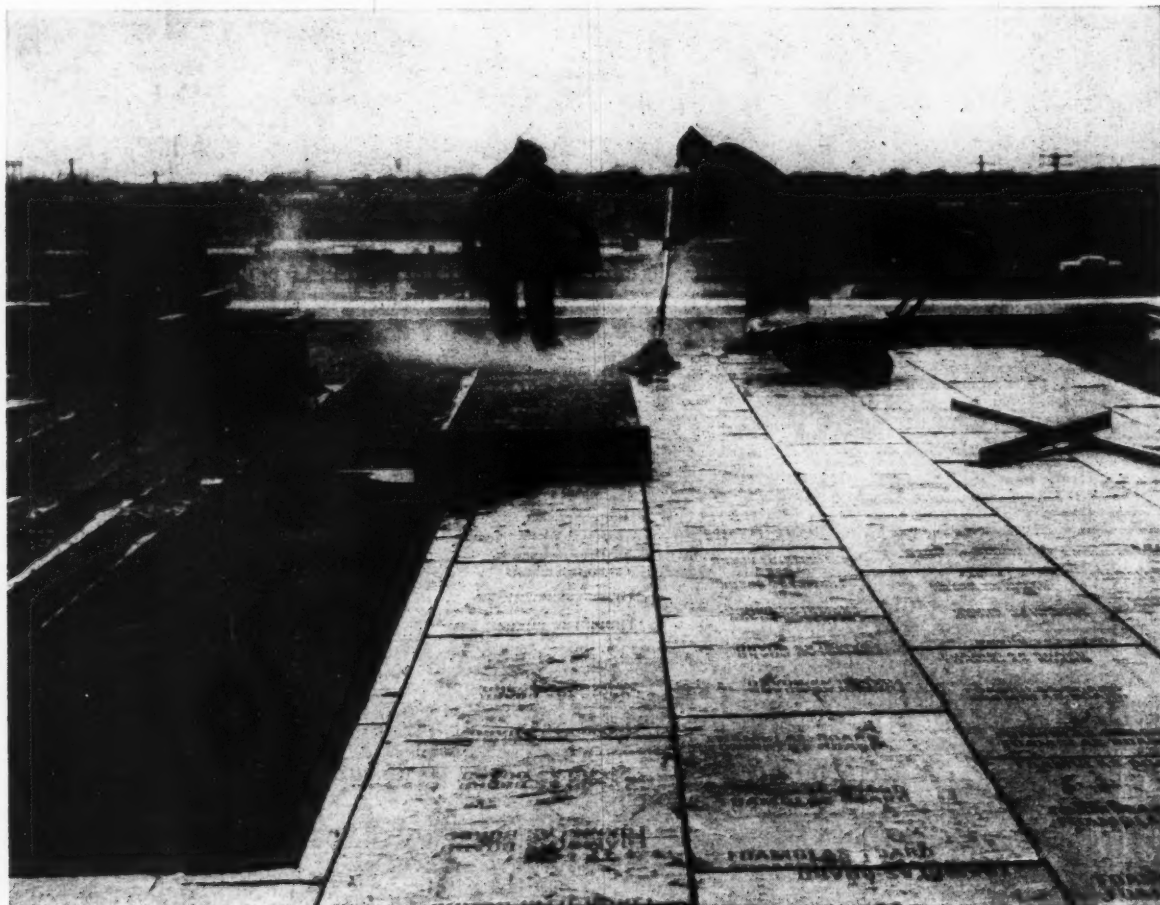


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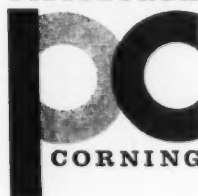
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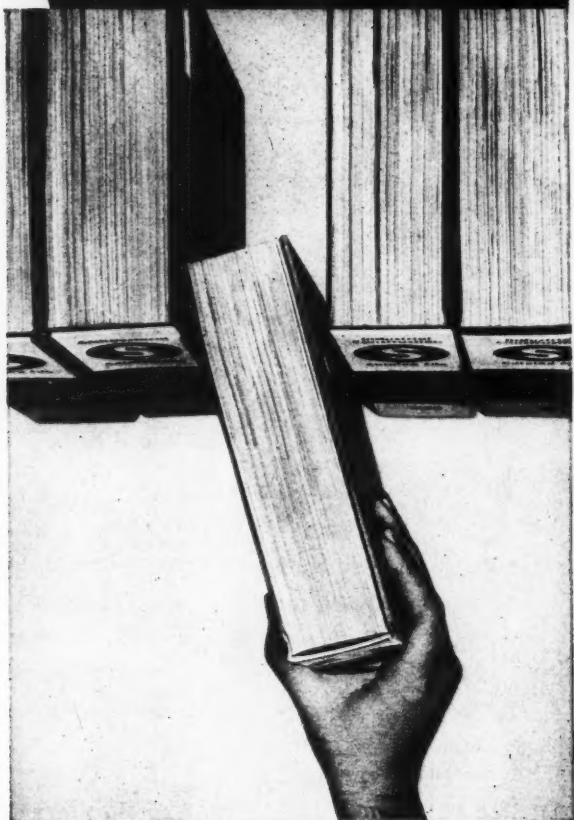
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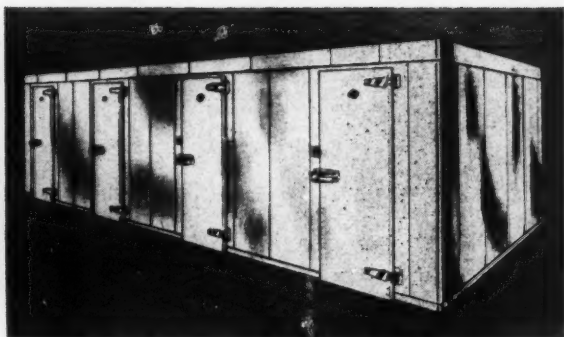
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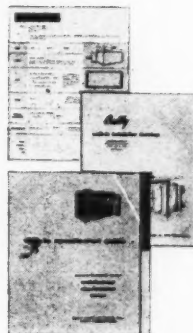
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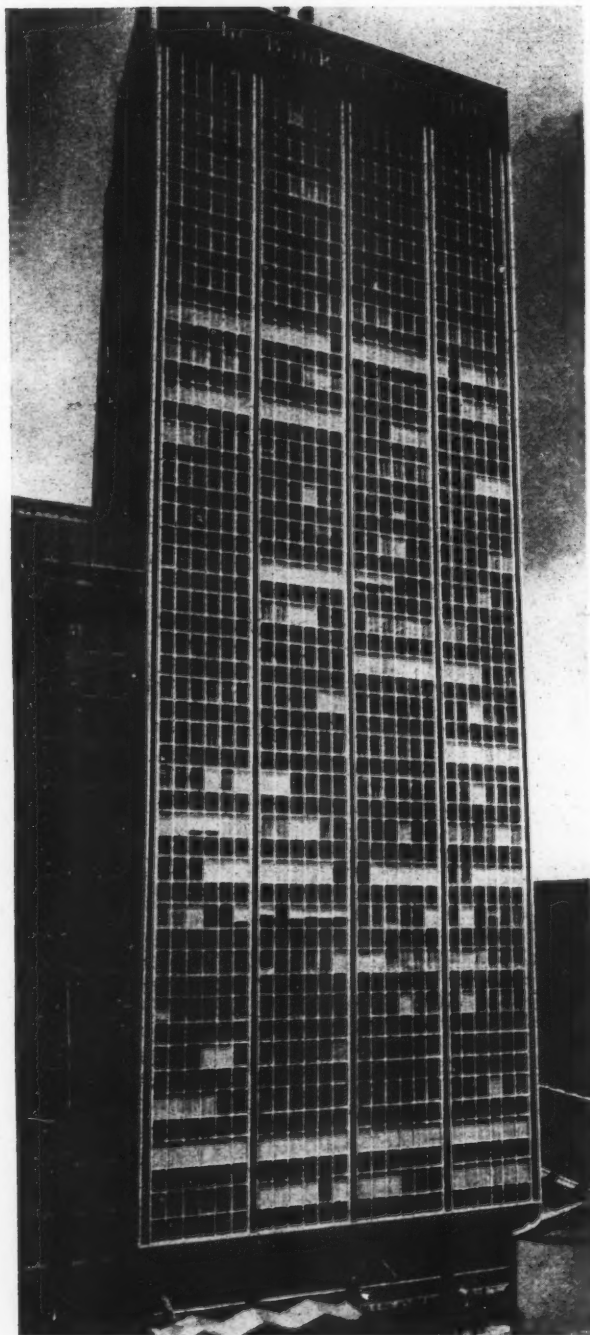
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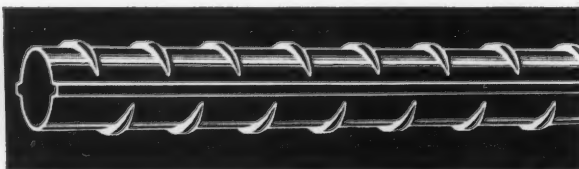
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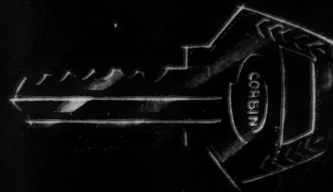


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